

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1970

2469-

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES

NINETY-FIRST CONGRESS

FIRST SESSION

SUBCOMMITTEE ON DEPARTMENT OF DEFENSE APPROPRIATIONS

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¹ Temporarily assigned.

H.R. 15090

PART 6

Budget and Financial Management
Budget for Secretarial Activities
Chemical and Biological Warfare
Defense Installations and Procurement
Defense Intelligence Agency
Operation and Maintenance, Defense Agencies
Procurement, Defense Agencies
Safeguard Ballistic Missile Defense System
Testimony of Admiral Hyman G. Rickover
Testimony of Members of Congress and Other
Individuals and Organizations

Printed for the use of the Committee on Appropriations



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¹ Temporarily assigned.

**DEPARTMENT OF DEFENSE APPROPRIATIONS
FOR FISCAL YEAR 1970**

WEDNESDAY, APRIL 30, 1969.

DEFENSE INTELLIGENCE AGENCY

WITNESSES

LT. GEN. JOSEPH F. CARROLL, U.S. AIR FORCE, DIRECTOR
CLYDE W. ELLIOTT, COMPTROLLER
**CAPT. HARTSELL F. McCUE, U.S. NAVY, CHIEF, AUTOMATIC DATA
PROCESSING SYSTEMS CENTER**

Mr. SIKES. The committee will come to order.

The committee is prepared today to give consideration to the budget request of the Defense Intelligence Agency for fiscal 1970. The request is for \$74,575,000, of which \$68,496,000 is for operation and maintenance funds, \$2,479,000 is for procurement, and \$3,600,000 for research, development, test, and evaluation.

The funding request for 1970 is an increase of \$5,060,000 above the current estimate for fiscal year 1969.

(1)

SUMMARY DATA ON FISCAL YEAR 1970 BUDGET

At this point in the record we will insert the various summary justification pages.

(The justification pages follow:)

DEPARTMENT OF DEFENSE, DEFENSE INTELLIGENCE AGENCY—SUMMARY

(In thousands of dollars)

Appropriation	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
Operation and maintenance, Defense agencies.....	59,295	65,668	68,496
Procurement, Defense agencies.....	3,974	1,772	2,479
Research, development, test and evaluation, Defense agencies.....	1,600	2,075	3,600
Total.....	64,869	69,515	74,575

OPERATION AND MAINTENANCE

SUMMARY OF OBLIGATIONAL AUTHORITY

(Dollar amounts in thousands)

DESCRIPTION	Fiscal year—		
	1968	1969	1970
Direct obligations.....	\$59,295	\$65,668	\$68,496
Reimbursable obligations.....	2,160	160	163
Gross obligations.....	61,455	65,828	68,659
DIRECT PROGRAM, CIVILIAN EMPLOYEES			
Average number of all employees (man-years).....	3,445	3,578	3,530
Number of permanent employees at end of year.....	3,653	3,526	3,519
Obligations:			
Civilian salaries and benefits.....	\$33,728	\$37,981	\$38,597
Other operating expenses.....	25,567	27,687	29,899
Total direct.....	59,295	65,668	68,496
REIMBURSABLE PROGRAM			
Average number of all employees (man-years).....	7	7	7
Number of permanent employees at end of year.....	7	7	7
Obligations:			
Civilian salaries and benefits.....	\$112	\$120	\$123
Other operating expenses.....	2,048	40	40
Total reimbursable.....	2,160	160	163

PURPOSE AND SCOPE

The Defense Intelligence Agency (DIA) was established on October 1, 1961 in accordance with Department of Defense (DOD) Directive 5105.21. This Agency reports to the Secretary of Defense through the Joint Chiefs of Staff. The responsibilities and authorities of DIA are enumerated in DOD Directives 5105.21, 5105.25, 5105.27, 5105.28, C-5105.32, and S-5200.17.

Responsibilities assigned to the Agency are as follows:

The organization, direction, management, and control of all Department of Defense intelligence resources assigned to or included within the DIA.

Review and coordination of those Department of Defense intelligence functions retained by or assigned to the military departments. Overall guidance for the conduct and management of such functions is developed by the Direc-

tor, DIA, for review, approval, and promulgation by the Secretary of Defense.

Supervision of the execution of all approved plans, programs, policies, and procedures for intelligence functions not assigned to DIA.

Obtaining the maximum economy and efficiency in the allocation and management of Department of Defense intelligence resources. This includes analysis of those DOD intelligence activities and facilities which can be fully integrated or collocated and non-DOD intelligence organizations.

Responding directly to priority requests levied upon the DIA by the U.S. Intelligence Board.

Satisfying the intelligence requirements of the major components of the DOD.

The operation and control of the Defense Intelligence School.

The management control over DOD mapping, charting, and geodesy activities to include supervision of the execution of all approved M.C. & G. plans, programs, and policies and procedures.

The development, assembly, integration, and validation of all DOD scientific and technical intelligence collection and production requirements; and the review and supervision of all DOD scientific and technical intelligence programs, projects, and activities. Provide intelligence estimates employing scientific and technical intelligence findings to all DOD components, to other members of the national intelligence community, and to international organizations.

Representing DOD in preparation of U.S. position papers in technical intelligence matters concerning international policy or activities.

The direction and administration of the Defense attaché system (DAS).

Exercising general surveillance and management direction of the communications intelligence (Comint) security program established by all DOD components, except the National Security Agency, for the security, use and dissemination of Comint.

ORGANIZATION

The Director, DIA, and headquarters staff

The Director, DIA, is the principal adviser to the Joint Chiefs of Staff for substantive intelligence matters, and the principal staff assistant to the Secretary of Defense for both substantive intelligence and managerial matters within areas of responsibility assigned by the Secretary of Defense. The headquarters staff assists the Director, DIA, in the exercise of his planning, programing, management, and supervisory responsibilities for the overall DOD general intelligence effort and provides administrative supervision and direction for DIA activities.

The Directorate for Intelligence Production carries out the principal substantive intelligence functions and responsibilities of the DIA, and directly controls and coordinates the intelligence production, intelligence estimates, photographic intelligence, and current intelligence and indications functions of the DIA.

The Directorate for Collection carries out those functions and responsibilities assigned to the Director, DIA, for the processing of intelligence collection requirements, the management of DOD intelligence collection activities including the Defense Attaché System, and the conduct of an intelligence dissemination program.

The Directorate for Mapping, Charting, and Geodesy discharges the responsibility of the Director, DIA, for management of all departments of Defense, mapping, charting, and geodesy activities, including hydrography and relating oceanography target materials and related surveys and geophysical activities.

The Automatic Data Processing System centers carries out the responsibilities of the Director, DIA, in developing policy and guidance for all DOD Automatic Data Processing (ADP) intelligence systems, plans and programs, and prepares DOD-wide ADP plans for intelligence data processing, including the development of plans for assignment of tasks to various DOD components in support of such plans. Assembles, validates and establishes priorities for all DOD automated intelligence systems and supporting equipment requirements. Operates the DIA ADP facilities in support of the DIA mission.

The Directorate for Scientific and Technical Intelligence develops, maintains, and manages the DOD foreign scientific and technological intelligence

production program on an all-source worldwide basis in order to insure the continuous availability of timely, complete, accurate, and responsive finished scientific and technical intelligence for use within OSD and Joint Staffs, and by the Military Departments, the Unified and Specified Commands and executive agencies.

The Defense Intelligence School conducts courses of instruction related to DOD Intelligence functions designed to (1) enhance the preparation of selected military officers and key DOD civilian personnel for important command, staff, and policymaking positions in the national and international security structure; (2) prepare DOD military and civilian personnel for duty in the military attaché system; (3) enhance the broad career development of DOD military and civilian personnel assigned to intelligence functions; and (4) prepare selected military and civilian personnel for the application of information science to intelligence problems of the intelligence community.

The Special Security Office operates and maintains a facility for the security and dissemination of sensitive intelligence requiring the protection of the SSO system, including the operation of an exclusive communication system in support of the Office of the Secretary of Defense, the Organization of the Joint Chiefs of Staff, and the Defense Intelligence Agency.

The Special Security Office performs intelligence functions and responsibilities of the Director, DIA, pertaining to staff management, administration and support of reconnaissance plans, programs, objectives, materials and security.

The Counterintelligence and Security Office discharges the responsibilities of the Director, DIA, to provide counterintelligence information and support to the JCS, and counterintelligence policy, planning and programing guidance, review and integration to the Unified and Specified Commands and Military Departments; administer programs of personnel security, physical and document security, and security education; and monitor release, and disclosure of intelligence information.

The defense attaché offices

The defense attachés are representatives of the DOD in foreign capitals as members of the Ambassador's military staff.

SIGNIFICANT CHANGES IN THE BUDGET PROGRAM

The budget program for fiscal year 1970 envisions no major change in the overall scope of operations from that approved in fiscal year 1969. Efforts will continue to direct available resources to the most critical areas. The long-range threat projection function undertaken during fiscal year 1969 as directed by the Secretary of Defense will expand in fiscal year 1970 according to phased implementation plans. The resources in support of this function were previously included in the budget estimate of the military departments and are included in the DIA budget for the first time in fiscal year 1970. The funds requested in the amount of \$68,496,000 in fiscal year 1970 will support operations at programmed levels, providing for the full year costs of projects undertaken in the current fiscal year for which only partial year funding was required; higher salary expenses resulting from the Postal Revenue and Federal Salary Act of 1967, and implementation of the long-range threat projection function. The requested increase of \$2,828,000 over fiscal year 1969 funding levels will provide for:

	<i>Thousands</i>
(1) Salaries and support of 41 additional personnel (16 military and 25 civilian) associated with the long-range threat projection project directed by the Secretary of Defense.....	\$907
(2) Higher average civilian salaries and full-year costs of salary increases effected during fiscal year 1969.....	361
(3) Upgrading of communication facilities and increased communication services.....	542
(4) Increase in reimbursement to Department of State for administrative support furnished to defense attaché offices.....	325
(5) Full-year cost of ongoing projects which were undertaken during fiscal year 1969 and other miscellaneous adjustments.....	608
Total	2, 828

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JUSTIFICATION OF ESTIMATES

To accomplish the mission and functions assigned to DIA, it is estimated that \$68,496,000 will be required for the period July 1, 1969, to June 30, 1970 for civilian pay and operating expenses of the Agency exclusive of military pay costs. The total fiscal year 1970 dollar requirements represents a net increase of \$2,828,000 over the \$65,668,000 available in fiscal year 1969.

Civilian compensation and personnel benefits

The largest single item of expense included in the DIA estimate is for the salaries and benefits accruing to civilian personnel which approximates 56 percent of the fiscal year 1970 annual estimate. Direct hire, full-time civilian employment is estimated to increase from the projected fiscal year 1969 end-strength of 3,533 to an end-year strength of 3,526 by June 30, 1970. Based on current employment experience, fiscal year 1969 average civilian employment is projected at 3,585 man-years. Average employment is anticipated to decrease by 48 to 3,537 man-years in fiscal year 1970. This reduction in average employment recognizes the full year, fiscal year 1970 effect of personnel hiring limitations imposed during fiscal year 1969. The amount of \$38,597,000 required for salaries and other benefits considers the grade and salaries of incumbent personnel; a normal lapse estimate based on personnel employment experience; and the salary scale effective July 1, 1968. A personnel summary is set forth below:

	Fiscal year—		
	1968	1969	1970
Total number of permanent positions.....	3,660	3,533	3,526
Full-time equivalent of other positions.....	19	20	20
Average number of all employees.....	3,452	3,585	3,537
Employees in permanent positions, end of year.....	3,660	3,533	3,526
Average GS grade.....	8.7	9.0	9.2
Average GS salary.....	\$9,587	\$10,479	\$10,614
Average salary of ungraded positions.....	\$3,426	\$3,773	\$3,903
Compensation and benefits (In thousands of dollars).....	\$33,728	\$37,981	\$38,597

Other operating expenses

General operating expenses to support tasks to be accomplished in fiscal year 1970 are estimated at \$29,899,000. This compares with \$27,687,000 in fiscal year 1969, an increase of \$2,212,000. The distribution of these costs by object of expense, with a comparison with fiscal year 1968 and fiscal year 1969 support levels, is as follows:

(In thousands of dollars)

	Fiscal year—		
	1968	1969	1970
Travel and transportation of persons.....	1,387	1,351	1,299
Transportation of things.....	359	418	522
Rent, communications, and utilities.....	5,018	7,195	8,039
Printing and reproduction.....	1,399	1,550	1,573
Other services.....	14,453	14,423	15,538
Supplies and materials.....	2,627	2,543	2,700
Equipment.....	324	207	228
Total, other operating expense.....	25,567	27,687	29,899
Civilian salaries and benefits.....	33,728	37,981	38,597
Total direct obligations.....	59,295	65,668	68,496
Reimbursable obligations.....	2,160	160	163
Total obligations.....	61,455	65,828	68,659

PROCUREMENT

PURPOSE AND SCOPE

The Defense Intelligence Agency (DIA) was established on October 1, 1961, in accordance with Department of Defense (DOD) Directive 5105.21. The Agency reports to the Secretary of Defense through the Joint Chiefs of Staff. The responsibilities and authorities of DIA are enumerated in DOD Directives 5105.21, 5105.25, 5105.27, 5105.28, C-5105.32, and S-5200.17.

The equipment program for which fiscal year 1970 funds are requested is required to enable DIA to support requirements in the following functional areas:

a. Intelligence data handling system (IDHS)

(1) Operates an automatic data processing systems center and provide automated intelligence support to the Joint Chiefs of Staff (JCS), military departments, unified and specified commands, and DIA components and activities.

(2) Develop and operate the DOD intelligence documents storage and retrieval system.

(3) Conduct feasibility testing of improved intelligence data handling capabilities for the DOD-IDHS.

b. Special security communications

Operate the Pentagon relay center of the defense special intelligence communication system and seven subscriber terminal facilities supporting the Secretary of Defense, the Joint Chiefs of Staff, certain facilities of the military departments, components of the national military command system, the U.S. delegation to the United Nations Military Staff Committee, and the DIA; to provide cryptographic support to DIA projects; and to provide ciphony equipment for DIA subscribers to the automatic secure voice network.

c. Photographic laboratory and interpretation

Maintain and operate the necessary facility for providing a central DOD depository and office of record for all DOD aerial and ground intelligence photographic holdings and to provide services necessary for military photographic processing, printing, and interpretation analysis required by the Secretary of Defense, Joint Chiefs of Staff, unified and specified commands, military departments, defense agencies, and authorized non-DOD activities.

d. Vehicles

Provide and replace passenger carrying and special purpose vehicles required in the operation of the defense attaché system.

e. Other

Replace and provide miscellaneous special purpose equipment required for normal operations of the Defense Intelligence Agency.

SUMMARY OF OBLIGATIONAL AUTHORITY BY PROJECT

(In thousands of dollars)

	Fiscal year—		
	1968	1969	1970
Procurement program:			
1. Electronics and communications equipment:			
(a) Intelligence data handling system.....	580	431	489
(b) Secure communications system.....	1,470	498	1,131
2. Photographic laboratory and interpretation equipment.....	1,688	636	572
3. Vehicles.....	160	133	203
4. Other equipment.....	96	74	84
Total procurement program.....	3,974	1,772	2,479

EXPLANATION OF ESTIMATES BY EQUIPMENT PROJECT

1. ELECTRONICS AND COMMUNICATIONS

a. Intelligence data handling :

Fiscal year 1968	-----	\$580,000
Fiscal year 1969	-----	431,000
Fiscal year 1970	-----	489,000

To provide automatic data processing equipment for the DIA Automatic Data Processing Systems Center. The funds requested will provide for purchase of an IBM 360/30 computer acquired on a rental basis during fiscal year 1969 under a lease-purchase arrangement which has proven satisfactory for its intended application. A lease versus purchase economic analysis indicates that financial benefits will accrue to the Government through purchase of the equipment. The computer with component configuration is estimated to cost \$489,000.

b. Secure communications :

Fiscal year 1968	-----	\$1,470,000
Fiscal year 1969	-----	498,000
Fiscal year 1970	-----	1,131,000

To provide secure data communication support for the DIA on-line, time sharing computer systems; to provide ciphony equipment for DIA subscribers to the automatic secure voice network (AUTOSEVOCOM); and to provide for limited upgrade of the Defense Intelligence Relay Center and DIA terminals of the special intelligence communications (SPINTCOMM) network. Specific undertakings for which funds are requested follow :

(1) Remote terminal devices, high-speed printers and secure communications equipment for the DIA on-line, time-sharing computer system are required to provide the intelligence analyst personnel with capability to query the DIA automated intelligence data base in order to correlate information in support of specific intelligence production projects and to respond to critical situations; and to support data processing applications relating to laboratory experimentation and development of new systems and techniques. The system will also permit on-line access to certain specifically designated computer files of other activities of the intelligence community in the Washington area. The fiscal year 1970 estimate for data communications equipment is \$777,000.

(2) Extension instruments to be used in conjunction with ciphony equipment presently on hand or on order are required to provide needed access to the automatic secure voice network (AUTOSEVOCOM). The fiscal year 1970 estimates include \$17,000 for the purchase of 100 extension instruments and initial spares.

(3) Replacement and modification of component equipment used in the Defense Intelligence Relay Center (DIRC) and in DIA terminal facilities of the special intelligence communications network (SPINTCOMM) are required to satisfactorily maintain current and anticipated message traffic flow requirements. Due to delay in the activation of the programed follow-on phase of the defense special secure communications system, a limited upgrade to existing SPINTCOMM capabilities is required to provide, insofar as is possible, responsive management and analysis capability on a real-time or near-real-time basis. The fiscal year 1970 estimate includes \$337,000 for the replacement of teletypewriters, reperforators, transmitter-distributors, and other wornout equipment; to modify other components; and to provide high-speed relay capabilities to high volume subscribers.

c. Photographic laboratory and interpretation :

Fiscal year 1968	-----	\$1,668,000
Fiscal year 1969	-----	636,000
Fiscal year 1970	-----	572,000

To provide additional and replacement equipment to enable DIA to maintain its photo laboratory and interpretation capabilities to meet the highest priority operational requirements of the JCS, military departments, Unified and Specified Commands, the DIA, and other authorized requestors. Newly developed photographic equipment and collection systems have rendered obsolete many items of equipment thereby necessitating replacement with equipment which is responsive to, and compatible with, new techniques.

d. Vehicles:

Fiscal year 1968.....	\$160,000
Fiscal year 1969.....	133,000
Fiscal year 1970.....	203,000

To provide for replacement of 122 passenger carrying and special purpose vehicles required at defense attaché offices. Vehicle replacements are made in accordance with prescribed replacement criteria.

e. Other:

Fiscal year 1968.....	\$96,000
Fiscal year 1969.....	74,000
Fiscal year 1970.....	84,000

To provide for new and replacement special purpose equipment necessary in the daily performance of the Agency's functions; such as reproduction, graphics, and intelligence data retrieval and display equipment.

RESEARCH, DEVELOPMENT, TEST AND EVALUATION

PURPOSE AND SCOPE

The Defense Intelligence Agency (DIA) was established on October 1, 1961, in accordance with Department of Defense (DOD) Directive 5105.21. The Agency reports to the Secretary through the Joint Chiefs of Staff. The responsibilities and authorities of DIA are enumerated in DOD Directives 51.05.21, 5105.25, 5105.27, and 5105.28.

The Secretary of Defense approved the detailed plan for the DIA Automatic Data Processing System (ADPS) Center on February 9, 1963. In the performance of this function, the DIA shall assemble, validate, and establish priorities for all DOD-wide automatic data processing (ADP) plans for intelligence data processing; assign task to various DOD components in support of such plans; develop policy and program guidance for all DOD ADP intelligence plans; specify standards for intelligence data representations, formats, and systems; develop and operate an ADP system for DIA and provide for the integration of all DOD ADP intelligence systems, insuring that they complement, where appropriate, those of non-DOD intelligence activities.

JUSTIFICATION OF ESTIMATES

To accomplish the mission and functions assigned to DIA, it is estimated that \$3,600,000 will be required for the period July 1, 1979, to June 30, 1970, for ADP systems analyses and techniques development in support of the DOD intelligence data handling system. The funds will be used to obtain specialized contractor assistance which will supplement the Agency's in-house capability in enhancing intelligence processing through information sciences technology and by directing new knowledge and techniques to critical intelligence functional areas.

SUMMARY OF OBLIGATIONAL AUTHORITY

[In thousands of dollars]

	Fiscal year—		
	1968	1969	1970
Intelligence data handling system.....	1,600	2,075	3,600
1. Advance techniques development.....	983	1,485	2,020
2. Information processing.....	352	590	1,180
3. Test and evaluation.....	265	0	400

*Explanation of estimates by subproject***1. Advanced Techniques Development (Approximately 50 man-years of contractor effort in fiscal year 1970) :**

Fiscal year 1968.....	\$983, 000
Fiscal year 1969.....	1, 485, 000
Fiscal year 1970.....	2, 020, 000

The fiscal year 1970 efforts included in this subproject will be pursued to assist in the development of advanced techniques as follows: (1) to adapt, modify, and expand selected ADP/data communications development to intelligence processing; to integrate systems; and to concentrate on applying advanced techniques to problems which are peculiar to the intelligence function (eg., multi-level security); (2) to develop and implement plans, techniques, and procedures to provide secure store and forward on-line computer data communications systems for intelligence activities and to provide systems analysis and programing support for the design and implementation of a supervisor program to control multiple computers installed at the DIA computer center; (3) to provide system support, in accordance with the provisions of the National ELINT Plan, to applicable DIA activities for the validation, evaluation, and dissemination of electronic intelligence; (4) to provide technical assistance in the design and conduct of a pilot series of experiments aimed at testing the application of improved methods and techniques to a critical intelligence analytical function; (5) to develop techniques and procedures to be used in the processing of intelligence information in the newly formed DIA Intelligence Examination Research Facility wherein intelligence processing is carried on in a simulated environment by highly trained information science and intelligence personnel; and (6) application of concepts and techniques of cost-effectiveness and system analysis to the many and varied areas of DOD intelligence activities to foster the highest level possible of DOD intelligence readiness and the wisest application of resources.

2. Information processing (approximately 30 man-years of contractor effort in fiscal years 1970) :

Fiscal year 1968.....	\$352, 000
Fiscal year 1969.....	590, 000
Fiscal year 1970.....	1, 180, 000

The fiscal year 1970 efforts categorized under this subproject will be undertaken to (1) develop an advanced data management system that will replace the Formated File System (FFS) used throughout the DOD IDHS; to (2) determine the nature of the DIA IDHS in the 1970's through analysis and systems studies of the receipt, distribution, holding, filing, dissemination, and other activities associated with message, report, document, and other data handling activities; and (3) to continue efforts to determine the areas of intelligence processing where optical character readers can make a significant contribution to information processing.

3. Test and evaluation (approximately 10 man-years of contractor effort in fiscal year 1970) :

Fiscal year 1968.....	\$265, 000
Fiscal year 1969.....	
Fiscal year 1970.....	400,000

The fiscal year 1970 effort included in this subproject is intended to provide D.D.R. & E./DIA with specialized analysis and consultant services in support of net technical assessments and in support of effectiveness studies of foreign strategic weapon and warfare systems.

GENERAL STATEMENT

Mr. SIKES. General Carroll, we are pleased to welcome you again before the committee in support of your agency's request for fiscal year 1970. We also welcome your associates who are here as supporting witnesses with respect to this program.

Would you please proceed with your statement.

General CARROLL. Thank you, sir.

Mr. Chairman and members of the committee, once again, I appreciate the opportunity to appear before this committee to discuss budget estimates for the Defense Intelligence Agency for fiscal year 1970 and to answer any questions the committee may have concerning the mission, organization, or operation of the Agency. In my prepared statement I will attempt to respond to the committee report which accompanied the Department of Defense appropriation bill for 1969 which recommended that we take action to improve the management and operation of military intelligence activities. We appreciate the interest the committee has taken in our activities and your suggestions for improvement. I will review some of the actions we have taken and will be taking in the near future to improve the conduct of military intelligence operations in the Department of Defense.

The objectives of this committee and my objectives as Director of the Defense Intelligence Agency are identical—to provide necessary military intelligence to our decisionmakers in the most timely, efficient, and economical manner possible. I appreciate the fact that the committee has supported the Agency in its budget request while at the same time offering constructive criticism.

To the average person who receives his impressions from radio, television, newspaper headlines, and spy novels, the intelligence business is a bizarre and exciting adventure. We run into this when we attempt to recruit college graduates and we have to be careful to clarify this misimpression, otherwise they become disillusioned and leave us when they find out that the intelligence business is really the accumulation, sifting, sorting, and analyzing of literally millions of bits of information in an attempt to determine the facts insofar as we can concerning the military capability and intentions of the nations of the world to the extent required by our national interests.

In his letter of December 27, 1968, the Deputy Secretary of Defense outlined some of the ways in which we are seeking to improve the quality and timeliness of our intelligence product. We in DIA are attempting to develop a system to improve the priorities related to our production planning.

Your committee report stated that too much time, personnel, and money are spent in accumulating a wide variety of information of no immediate and of doubtful future value. Information needs of the Department of Defense are varied and far-ranging. Urgent reports on the Middle East crises, a fighting war in Vietnam, a tense international situation in Korea—must be balanced against the less urgent but highly important requirements. Let me say that we expend a great deal of effort trying to collect only that information that is clearly needed and to insure that the collected data is usable, pertinent, and available in a timely manner. I caused a study to be made of the effectiveness of these efforts in response to the committee remarks.

INTELLIGENCE INFORMATION REPORTS AND THEIR PROCESSING

It is true, of course, that any information system as complex as the one DIA must maintain is in constant danger of getting clogged with apparently useless or marginally useful material. Safeguards are necessary. In DIA these take two major forms:

The first is a set of precautions to insure we collect in the field only that information that is clearly needed, to insure we collect it only once, and that it isn't already available in usable form in the United States.

The second is a series of processes to insure that the collected data is usable, pertinent, and timely. In these processes we provide for a continuing evaluation of the reports from all collectors.

The checkpoints in the first arena can be described briefly. All DOD intelligence collection requirements are processed and registered by DIA. All intelligence collection requirements are funneled through a central office for validation to reduce duplication and to insure that thorough research has established that the information is not already available.

Stringent validation criteria reduce the number of requirements for low priority and encyclopedic information of marginal use. The non-validation of unnecessary, unrealistic, or low priority requirements causes the originators of specific requirements to limit their requests to essential needs.

In 1966 the nonvalidation of specific requirements was 10 percent. In 1968 the nonvalidation of specific requirements was 27 percent due to more stringent validation criteria. This has also reduced the number of specific requirements received by the collection managers in DIA. In 1966 over _____ specific requirements were processed in DIA. In 1968 about _____ specific requirements were received—a reduction of almost 50 percent. This is attributed in large part to the continuing indoctrination of originators of specific requirements.

During the committee's deliberations, concern was expressed over a backlog of some 517 linear feet of information reports. This, like the other backlogs that occasionally occur, was a transient situation and no longer exists. When such backlogs do occur, the IR's that make up the backlogs have already been given an initial review by DIA analysts who are on the lookout for information of a time sensitive nature. The IR's that do not contain information of immediate value then may accumulate until the analyst can analyze them in detail. Elimination of the occasional backlog comes about through the indepth processing of the IR's by the desk analyst as he evaluates them and integrates the resultant intelligence into the data base.

IR's are not time sensitive. Information of time perishing significance or of unusual importance is flashed by electrical means in message form from all parts of the world to the DIA current operations center.

I hope it is clear that a relationship to a current situation cannot be the sole criterion of the relevancy and value of information to be collected. Much of the information which must be collected and placed in the DOD intelligence data base may be unrelated to a current crisis or high interest situation. It is collected because of its potential rele-

vancy to the needs of a military planner or commander at a future time when the exigencies of the situation or other factors may prevent its timely collection. Obviously, such information does not require rapid transmission, rapid dissemination, or even rapid processing by the analyst once it is received, nor is it sound to commit the large additional amounts of expensive resources which would be required to achieve maximum rapidity in any or all of these phases of information handling.

I want to emphasize that neither the fact that information is not needed immediately nor the fact that it is tolerable for some time to elapse before it enters the data base, permit the judgment that it should not have been collected in the first place.

Since IR's do not contain time sensitive information, they are normally disseminated routinely through the DIA dissemination center to analysts. On the average it requires 8 working days from the time an IR comes into the dissemination center until it is received by the analyst.

If, by chance, a time sensitive IR should be urgently needed during this dissemination, it is given priority handling. This can be accomplished within a matter of minutes or hours depending upon the makeup of the IR. Also, it should be emphasized, an initial distribution is made to selected principal users by the collector at the time the IR is forwarded to the DIA dissemination center.

In view of the critical attention that was focused on this area by your committee, and in order to insure that our guidance and instruction for collection and reporting were being followed, I set up a comprehensive and objective test to determine two basic facts:

First, the number of incoming IR's that contained time sensitive information, and second, to determine the number of incoming IR's that contained information of no value in relation to the legitimate needs of the analysts to whom they were disseminated for exploitation.

This test was conducted over a 3-month period between mid-October 1968 and mid-January 1969 by a special panel of six experienced analysts who screened all IR's coming into DIA.

These analysts were senior-level analysts, civilian and military, and they were supervised by my Chief of Staff, a major general. To provide a broad perspective, the panel members were rotated as a group approximately every 3 weeks. The relief for the senior members of the panel overlapped with the shifts of oncoming panel groups to provide continuity from one group to another. The panel members were drawn from five general subject fields of intelligence.

The panel operated in this manner. Every IR received by the DIA dissemination center was reviewed in detail by each member of the panel. When an IR was judged by the panel to be of questionable value for dissemination, the receiving analysts were asked by questionnaire whether or not the IR was of value, and to indicate in specific terms, what was of value. When an IR was judged to be of a time sensitive nature, the receiving analysts were asked by the panel to state whether or not the information had already been received by electrical message.

Regarding the number of IR's containing time sensitive information, the Panel found that in the more than _____ IR's that were

screened, only one was judged to be of a time sensitive nature. The Panel's followup revealed that the information had been previously reported by electrical message.

With respect to worth of the information being reported, of the — IR's processed by the Panel, less than one-half of 1 percent were determined by the analysts to be of insufficient value to warrant dissemination or retention.

The results of this objective and comprehensive test demonstrate that the DIA IR system, in all of its aspects—requesting, validating, collecting, and disseminating—intelligence information, actually works and is working with increasing efficiency.

The responsibilities of the Department of Defense require that DIA establish and maintain an information system of great volume and great complexity. The concerns of the committee are reflected in the concerns of DIA—that this information system not get too ponderous, too unresponsive, or overloaded with information of no use to anybody. We believe we have moved strongly to control collection, processing, analysis, and production. We know this cycle of intelligence activity is a continuing problem of major proportions, not only for DIA but the entire intelligence community. We know that the increasing volume and complexity of information handling requires constant attention and innovative improvements, and all of our efforts are dominated and guided by a high priority recognition of this requirement.

MANAGEMENT OF INTELLIGENCE PRODUCTION

The question of duplication in intelligence production among DIA, the Unified and Specified Commands, and the Military Departments is under constant review.

Perhaps what has given rise to the impression of large-scale duplication in DOD intelligence production, is the practice of the unified and specified commands wherein DIA intelligence publications are *reformatted* and additional detail is included to meet special command needs. The principal difference between DIA intelligence publications and those produced by the commands is that ours are intended for a wide variety of users, while the commands' are mission oriented. Mission oriented intelligence often is required in greater detail than that provided by DIA, requires formatting in a manner best suited for immediate use, and must reflect the essential updating necessary to maintain a readiness posture. This more precisely tailored intelligence must be developed by the tactical commander's intelligence staff, updated, and be formatted and packaged in multiple copies for immediate use in the field.

Let me outline the management system which has been developed by DIA to make sure that intelligence production and automation throughout the military system is mutually supporting and not duplicative. This system is fully supported by the commands and departments and undergoes constant review and refinement. It was never the intent of the Secretary of Defense or the Joint Chiefs of Staff to have DIA produce all intelligence required by the unified and specified commands and the departments. DIA, therefore, never developed

the capability nor was given the resources to do so. Instead we adopted a concept of mutually supporting DIA, command, and military department intelligence production wherein all commands are expected to draw upon the system for direct support, to the greatest extent possible.

The mutually agreed DIA, command, and departmental effort is directed toward the timely, efficient, and economical production of standardized intelligence products. We have pursued this coordinated production concept through continuing liaison, staff visits, ad hoc meetings, regional conferences, and worldwide intelligence production/automation conferences, held annually. The results of these efforts are reflected in an agreed worldwide intelligence production program. This coordinated production program addresses the entire DOD intelligence production effort and is regulated by guidance manuals, plans, and schedules.

Prior to DIA, for example, the military departments produced a wide variety of orders of battle (OB). There was some automation planning and development, but no OB was completely automated. The OB's varied widely in coverage, format, and scheduling. Forces and weapons systems that constituted a major potential threat to the United States were often analyzed by all the departments on a duplicative basis.

Prior to DIA, field commanders produced basic OB data often duplicating Washington area OB analysis. A given order of battle might have been produced by several military organizations, with overlapping/conflicting content and differing formats. No mechanism existed to insure resolution of differences. Some OB coordination did occur and some use was made of Washington area analysis by the commands. But lack of standardization in format and procedure made it extremely difficult.

DIA has substantially improved the quality, quantity, and objectivity of OB data available to decisionmakers at all echelons. However, field commanders still must be able effectively to follow and identify moving enemy forces during actual conflict. This is possible only if a field commander has an integral intelligence capability which has been constantly exercised.

As part of our continuing effort to improve utilization of DOD worldwide intelligence resources, after full and complete coordination with all military departments and the eight U.S. commands, we have developed a plan which eliminates unnecessary duplication, minimizes necessary redundancy, and promotes mutual interdependency and cross-servicing among all elements of DOD intelligence organizations.

As illustrative of the fact that this DIA management system which have described actually works to promote efficiency and in a manner mutually agreeable to DIA and the commands concerned, I am furnishing to the committee a message to DIA from the Commander in Chief Pacific, captioned "Review of Scheduled Intelligence Production," dated February 4, 1969. This message states in part:

1. In accordance with the management principles stated, this headquarters has reviewed scheduled intelligence production within the Pacific Command.
2. Based upon the recommendations of components and discussions during the PACOM Intelligence Production Review Board

meeting of December 10, 1968, the following intelligence products have been determined to be unnecessary or duplicative.

The message then identifies for elimination certain products. The production man-hours associated with each product are set forth. The total man-hours saved amount to 44,820. This is but one tangible example of the beneficial results being achieved through collaborative DIA-Unified and Specified Command management efforts.

AUTOMATED SUPPORT FOR INTELLIGENCE ANALYSTS

We feel that a particularly promising activity in production operations is that of automated support for analysts in access to information data bases. DIA is engaged in two major improvement projects in this area. One of these is project ANSRS (Analysis Support and Research System) which permits analysts to query a DIA time-sharing computer from remote consoles in their own offices. The system is currently in limited operational use, although the current test and evaluation period will extend to June 30, 1969.

Probably the greatest obstacle to improvement of production operations in the DIA is the continued dispersion of our production, production support, and collection elements in several scattered and operationally inefficient facilities. Included in our budget request this year, which will be heard by Representative Sikes' Subcommittee, is the funding for a new building which will provide for the first time an adequate operating facility.

Now let me proceed to outline our budget estimates for fiscal year 1970, the details of which have been furnished to your staff.

OPERATION AND MAINTENANCE

The operation and maintenance expenses to conduct the Agency's mission during the fiscal year 1970 are estimated to be \$68,496,000, exclusive of expenses associated with minor reimbursable projects which we will undertake in behalf of other government agencies. This is an increase of \$2,828,000 over currently available fiscal year 1969 funds which is due principally to higher average civilian salaries and full year costs of salary increases effected during fiscal year 1969 as a result of the Federal Salary Act of 1967; upgrading of communication facilities and increased communication services; increased costs to DIA for support furnished by the Department of State to our attaché activities; and other miscellaneous adjustments.

Our fiscal year 1970 budget projects a decrease in civilian personnel strengths and man-years when compared with comparable fiscal year 1969 estimates as follows:

	Fiscal year	
	1969	1970
Estimated end strength.....	3,553	3,546
Estimated man-years.....	3,585	3,537

During 1969 the Joint Chiefs of Staff assigned to the DIA a new function. This project which has been explained in detail in classified

papers furnished to the committee is in accordance with phased implementation plans which were recommended by the Joint Chiefs of Staff and approved by the Secretary of Defense. The resources in support of this function were previously included in the budget estimates of the Military Departments and are included in the DIA budget for the first time in 1970.

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

The research, development, test and evaluation program for the Defense Intelligence Agency for fiscal year 1970 is estimated at \$3,600,000. This compares with \$2,075,000 available in fiscal year 1969, an increase of \$1,525,000 over current funding levels. We intend to continue our efforts to improve intelligence data handling capabilities by introduction of new techniques and procedures, to further expand the application of mechanized processes to intelligence production, and to utilize newly developed equipment, or any combination thereof.

Funds approved for the DIA R.D.T. & E. program in fiscal year 1970 will be used to obtain specialized contractor assistance in further enhancing the intelligence processing capabilities through information sciences technology and the direction of new knowledge and techniques to critical intelligence functional areas. We will continue development of a system to apply more effectively concepts and techniques of cost effectiveness and system analysis to the many and varied areas of DOD intelligence activities to foster the highest level possible of DOD intelligence readiness and the wisest application of resources. Further development will be undertaken on projects to determine the nature of intelligence data handling systems in the 1970's in order to provide for a planned progression from today's capability and methodology to tomorrow's requirements and foreseeable technical developments.

PROCUREMENT

The procurement appropriation request contains specific new and replacement equipment items and modifications to existing equipment estimated to cost \$2,479,000—an increase of \$707,000 over the amount available during the current fiscal year. Of the amount requested for fiscal year 1970, \$489,000 is for purchase of a computer acquired on a lease-purchase arrangement in fiscal year 1969 which has proven satisfactory for its intended application and where an economic analysis of rental versus purchase cost has reflected that financial benefits will accrue through purchase of the equipment. It is estimated that \$1,131,000 will be required for secure data communication equipment, secure voice communication equipment for DIA subscribers to the automatic secure voice network, and for limited upgrade of certain Defense Intelligence Relay Center and DIA terminal equipment. Additional and replacement photographic laboratory and interpretation equipment programed for procurement in fiscal 1970 is estimated to cost \$572,000. The amount of \$203,000 is requested to provide for replacement of 122 vehicles in the Defense Attaché System which meet the established criteria for replacement. The balance of the request (\$84,-

000) is for the acquisition of miscellaneous additional and replacement equipment necessary in the daily performance of the Agency's functions. More specific details on our procurement program and requirements have been furnished to the committee.

This concludes my prepared statement.

Mr. SIKES. General Carroll, (this has been very interesting, a very comprehensive statement. I consider it one of the best you have given to this committee.

General CARROLL. Thank you, sir.

Mr. SIKES. I want to compliment you on the thorough detail which you went into concerning questions which previously had been raised by this committee and upon the obvious effort on the part of DIA to meet any criticism advanced by this committee heretofore.

General CARROLL. Thank you, sir.

EFFECT OF REVENUE AND EXPENDITURE CONTROL ACT

Mr. SIKES. Now I would like to turn to your overall budget estimate for fiscal 1969 and 1970 briefly. The original DIA budget request for fiscal 1969 was \$71,383,000. In the supplemental now pending there is a request for \$1,629,000. These two amounts would have made available to your agency without reduction a total of \$73,012,000 for fiscal year 1969.

You now show an estimated funding level in fiscal 1969 of \$69,515,000 or a reduction of \$3,497,000 below the amount that could have been available. This minimum funding reduction would seem to indicate that the committee report of last year and the Revenue and Expenditure Control Act of 1968 did not have an appreciable effect upon your operations.

Will you explain that situation to the committee? In other words, we would have assumed that the DIA funding level for 1969 would have been reduced under the Revenue and Expenditure Control Act substantially more, approximating the 1968 level. Will you explain that?

Mr. ELLIOTT. Mr. Chairman, the additional supplemental amount was submitted and, as you mentioned, \$1,629,000 was the net additional amount required for the civilian Pay Act after absorbing \$471,000 of the total within available funds. This request has not been acted upon by the Congress, as far as I am aware. We have recently made known to the Office of Secretary of Defense that we had in our program \$1,200,000 which, due to the cutbacks in personnel that have been occurring monthly as a result of Public Law 90-364; and other reduced requirements would not be needed. The degree to which the Office of Secretary of Defense has taken those additional savings into consideration in their overall supplemental determinations I am not sure.

Mr. SIKES. Mr. Garrity.

Mr. GARRITY. What the committee is really trying to get at, Mr. Elliott, is: On the basis of our report of last year and in connection with the Revenue and Expenditure Control Act, why funding for Defense intelligence activities would not have been reduced more substantially than they were or than is indicated by the figures that have been presented this year. They have only been reduced, according to

the information provided, by about \$3,500,000. Considering everything that has transpired in the last year, why would not it have been reduced substantially more?

Mr. ELLIOTT. I don't know how much you expected, Mr. Garrity, but I do know that our civilian manning has been going down steadily during this year. As a result, our authorized strength, of course, has been reduced.

In June of 1968 we had 3,688 full-time permanent civilian positions authorized. Due to the estimated effect of the public law that you refer to and other actions this number has been reduced to an authorized strength of 3,533 permanent civilian positions on June 30, 1969. Our actual on board civilian strength on June 30, 1968, was 3,660. As of March 31, the latest date that we have, it is 3,456.

So we are complying fully with the public law. Our strength is going down in very regular and easily estimated fashion, as we only replace three out of four of our civilian quits. Considering the \$1,200,000 savings which I previously mentioned, plus the \$471,000 of civilian Pay Act costs which were absorbed within our funding program and not included in the supplemental request our present estimate for fiscal year 1969 is \$5,168,000 below the amount that could have been available.

EFFECT OF COMMITTEE REPORT

Mr. GARRITY. Well, we recognize that reductions have been made because of the Revenue and Expenditure Control Act, but did our report have any effect on the operations or expenditures of the Defense Intelligence Agency?

General CARROLL. Which report are you referring to?

Mr. GARRITY. The committee report of last year, insofar as we discussed the operations of intelligence activities.

General CARROLL. It had a tremendous effect.

Mr. GARRITY. Fundingwise; that is what is referred to.

General CARROLL. From a management standpoint, yes. Now, fundingwise, I can't identify any other than the kind of savings that are associated with improved utilization of resources that made the handling of our ever-growing requirements possible. I cannot identify any direct fiscal reductions that would have been associated with it, though I believe I have in my statement—and I am prepared to elaborate in the event that we have additional questions—described savings that could be derived, associated with improved utilization of resources.

Mr. GARRITY. We will get into management improvement activities later on, but right now we were trying to establish something regarding funding reductions which resulted from the committee report.

EXPLANATION OF 1970 INCREASES

Mr. ANDREWS. General, for fiscal year 1970 you are requesting total funding of \$74,575,000 or an increase of \$5,060,000 over the total estimated to be available for 1969, and \$9,706,000 above the actual for 1968. In light of our report last year, why do you believe any increase in funding is justified?

General CARROLL. May I address that, sir, at least as a basis for further discussion, by identifying in general terms what the increases are associated with?

The budget program for 1970 envisions no major change in the overall scope of operations from that approved in fiscal year 1969. Efforts will continue to direct available resources to the most critical areas. The long-range threat projection function which I described in my statement undertaken during fiscal year 1969 as directed by the Secretary of Defense will expand in fiscal year 1970 according to phased implementation plans. The resources in support of this function were previously included in the budget estimate of the military departments and are included in the DIA budget for the first time in fiscal year 1970.

The operation and maintenance funds requested in the amount of \$68,496,000 in fiscal year 1970 will support operations at programmed levels providing for the full-year costs of projects undertaken in the current fiscal year for which only partial funding was required, higher salary expenses resulting from the Post Revenue and Federal Salary Act of 1967, and implementation of the long-range threat projection function.

The requested increase of \$2,828,000 over fiscal year 1969 funding levels will provide for, one, salaries and support of 41 additional personnel associated with the long-range threat projection project directed by the Secretary of Defense to the amount of \$997,000; higher average civilian salaries and full-year costs of salary increases effected during fiscal year 1969, \$361,000; upgrading of communications facilities and increased communications services, \$542,000; increase in reimbursement to the Department of State for administrative support furnished to Defense attaché offices, \$325,000; full-year cost of ongoing projects undertaken during fiscal year 1969 and other miscellaneous adjustments, \$603,000, totaling \$2.828 million.

I believe from that, sir, that it should be indicated that the increases that we are asking for are associated fundamentally with built-in increased costs associated with pay raises pertaining to civilian personnel, with the new function assigned to us by the Secretary of Defense and the Joint Chiefs of Staff, and with increases in reimbursements which it is incumbent upon us to make to the State Department for administrative support to our Defense attaché offices.

INCREASED EMPLOYMENT

Mr. ANDREWS. How many new employees are you requesting for 1970?

General CARROLL. It would be a net decrease with respect to civilians of seven.

Mr. ANDREWS. What about military?

General CARROLL. There will be an increase, I believe it is, of 53, which would give us a net increase, minus the seven civilians, of 46.

Mr. ANDREWS. You mentioned the number 41 in your previous answer.

General CARROLL. The 41 was directly related, sir, to the long-range threat assessment project which I mentioned, and includes both military and civilian.

Mr. ANDREWS. You are not asking for an increase in civilian employees?

General CARROLL. No, sir; not a net increase.

Mr. ANDREWS. But you are asking for a new program?

General CARROLL. Yes, sir; I am.

Mr. ANDREWS. And new employees for the new program?

General CARROLL. That is correct, sir.

Mr. ANDREWS. So when you total it all up and look at the picture overall you are asking for new employees for fiscal 1970.

General CARROLL. I am asking for new employees to perform this function, but when we add up the pluses and the minuses it comes out the way I cited.

COMMITTEE RECOMMENDATIONS REGARDING DIA

Mr. ANDREWS. Let me read briefly from the committee report of last year in connection with intelligence activities.

(Reading):

Because of the very essential need for accurate, up-to-date intelligence information, the committee first investigated, and then discussed, current intelligence units of the services.

The evidence disclosed a need for reorganization of the intelligence activities of the Department as a whole. The committee is convinced that certain intelligence operations are overstaffed, duplicate activities are being carried out, and there is a general inadequacy of management. There appear to be far too many separate operating units or intelligence organizations, too many layers of authority, and too much time, personnel, and money being spent on accumulating a wide variety of information of no immediate, and of doubtful future value. The Defense Intelligence Agency and the services should deal in more realistic priority requirements and not waste their time and effort in accumulating volumes of ineffectual material.

It was evident that there was, in part at least, a failure to properly analyze current intelligence information. The possible resultant effect of inadequate operational planning would be inexcusable. Evident, also, was the fact that some intelligence officers were not knowledgeable as to current factual intelligence information.

The committee noted that the military services are performing functions which were specifically delegated to the Defense Intelligence Agency and also that the Defense Intelligence Agency is performing operations which in some instances could be better undertaken by the services. Sound guidelines should be established for the collection and dissemination of intelligence information, and a realignment of operations is clearly needed. Better management of the intelligence function should result in savings both in operation and maintenance and military personnel funds.

The committee was assured that responsible intelligence officials within the Department were taking actions on their own to improve current operating procedures. The Secretary of Defense should take direct and immediate action to see that improvements are made in the management and operation of the intelligence activities of the Department, and a report on progress in that direction should be furnished the committee before commencement of the 91st Congress.

Now, in your statement, General, you mention the Deputy Secretary of Defense's letter to the committee dated December 27, 1968,

reporting on the intended improvements in intelligence operations. Of course, we appreciate the Department's reporting in a timely manner. Does the letter convey most of the improvements in intelligence operations which are intended to be accomplished?

General CARROLL. It conveys in general terms various courses of action which have been undertaken within the Department of Defense, Mr. Andrews. It describes individual actions which are underway which are designed to improve efficiency, and which are designed to come to more tangible grips with some of the specific detail that was pointed out in the House Appropriations Committee investigative team report.

In elaborating upon some of the things stated by the Deputy Secretary of Defense, I went into more detail in my statement as to some of the things we have done, particularly addressing problems concerning volume of information received, value of information received, and the kind of controls that we are undertaking to exercise both as regards the beginning of the intelligence cycle; namely, the establishment of requirements, and the end of the intelligence cycle as regards providing for mutual cross-servicing, mutual interdependency among the production elements of the Department of Defense.

CIVILIAN AND MILITARY EMPLOYMENT

Mr. ANDREWS. Could you tell me, General, for the year 1968, how many civilian employees DIA had and how many military?

General CARROLL. In 1968 our number of permanent civilian employees at the end of the year was 3,660.

Mr. ANDREWS. What about 1969?

General CARROLL. 1969, we estimate 3,533 on June 30.

Mr. ANDREWS. How many are proposed for 1970?

General CARROLL. 3,526.

Mr. ANDREWS. What about the military?

General CARROLL. At the end of fiscal year 1969, we estimate 2,723. At the end of fiscal year 1970 it will be 2,776.

Mr. ANDREWS. How about 1968?

General CARROLL. 2,652.

SYSTEM TO IMPROVE PRIORITIES

Mr. ANDREWS. You mention that DIA is attempting to develop a system to improve the priorities related to production planning and that this is an attempt to achieve more realistic priority requirements. Is this improvement in priorities related to the improvement in intelligence production or in the management of intelligence operations, or are they synonymous?

General CARROLL. They represent a common objective in both areas. The purpose, primarily, is to provide more definitive guidelines in establishing requirements and permitting better priority determinations associated with the various requirements. This, then, would serve as the base for developing an improved management approach to the allocation of collection and production effort and to the determination of the content and timeliness of the products which are produced.

TARGET-ORIENTED DISPLAY

Mr. ANDREWS. How will the development and use of the target-oriented display or TOD improve the management of intelligence operations and what have been the results to date?

General CARROLL. Mr. Andrews, the target-oriented display is an assemblage of all of the resource data pertaining to the overall conduct of intelligence operations in significant elements of the executive department. It is being collected and arrayed in such manner that the information thus acquired will lead itself to providing high visibility to the manner in which intelligence resources, whether they pertain to collection or production or support or administration, are being allocated to the performance of the principal aspects of the intelligence mission.

For example, they can be arrayed and displayed in such manner as to show what is the total amount of resources allocated, together with the associated costs, _____.

It will also permit a determination as to how much of this overall resource is allocated to the collection function, how much to the production function, how much to positive intelligence as a categorization, how much to counterintelligence, how much to administration, how much to support, and so forth. It will also permit identification of the various activities and facilities that are engaged in these various major segments of the intelligence activities.

It will also permit us to make determinations as to what are the total resources and the balance among those resources that are being devoted to major mission achievements. _____.

In doing all this, I think we will be in a position where we will be able, one, to make better judgments than we have been able to in the past, bearing in mind Mr. Andrews, that this assemblage of resources and allocation of them in relationship to various intelligence objectives cuts across the entire broad of all intelligence programs, not just mine but that of NSA, that of CIA, and that of other activities of the Department of Defense which are highly classified.

This, then, enables management to, one, have a better idea as to how the total resources are being allocated, what is being received and returned from them, how they accord with the priority determinations of the needs of the United States, what our alternate courses of action are that can be pursued, either from the standpoint of improving effectiveness in the respective areas or modifying the effort better to coincide with what is considered to be a cost-effectiveness relationship between the effort on the one hand and the value of the product received.

GOVERNMENT AGENCIES CONCERNED WITH INTELLIGENCE

Mr. ANDREWS. General, could you tell us how many Government agencies are concerned with intelligence? There is CIA, DIA, NSA, and others.

General CARROLL. Principally within the Executive Department, Mr. Andrews, it would be the Department of Defense, which I will elaborate on in a moment; then CIA, NSA, the State Department, with certain intelligence activities and inputs stemming from other mem-

bers of the U.S. Intelligence Board, such as in some instances the FBI in a support role, and the Atomic Energy Commission.

Principally, the major intelligence activities are conducted by DIA and associated Department of Defense elements, the Central Intelligence Agency, and the National Security Agency.

Within the Department of Defense, the principal intelligence agency is the Defense Intelligence Agency. Within the overall Department of Defense structure there are intelligence entities and organizations and facilities which are associated with each level of command.

Mr. ANDREWS. Such as Army Intelligence, Naval Intelligence, Air Force Intelligence, Marine Intelligence?

General CARROLL. That is correct.

EMPHASIS ON INTELLIGENCE

Mr. ANDREWS. General, you are one of the highest ranking members of the intelligence community. I would like to ask if, in your opinion, there is too much emphasis on intelligence. With all the agencies you have mentioned, are there any overlapping functions or duplication of effort, any waste of money? What is your comment on that?

To an outsider and a layman, it appears to me that we are overly "intelligent."

General CARROLL. Perhaps I can respond in this way: The world environment in which we live today and the broad interests of the United States are such that planners and decisionmakers have an ever-growing need for sufficient information upon which to do their forward planning and to enable them to consider alternate decisions with which they may be confronted, of a military, political, diplomatic, or economic nature.

I believe I can state from my own personal observation that in the past 10 years there has been a dramatic increase of dependency on and for intelligence by the planners and decisionmakers. I think this is attributable, in turn, to a combination of the technological revolution that we have seen go on in the world and the sociological revolution which is erupting in almost every corner of the world.

I think what has evolved is this: an absolutely indispensable sine qua non to the development of any rational strategy and to the implementation of any strategy that may be so developed is intelligence. That, in turn, has resulted in a very substantial increase of requirements on the intelligence community.

Over and beyond that, one of the reasons these additional requirements are coming on us in the technological breakthroughs which have occurred in the past decade, which have put intelligence in the fortunate position of being able to acquire much more precise, much more detailed information than ever was the case before.

This, in turn, puts intelligence in a better position to serve the increasing needs of the planners and the decisionmakers and policy-makers.

OVERLAPPING OF AGENCIES

Mr. ANDREWS. You have made a good statement, General Carroll, but my question is: In your opinion, is there any overlapping of jurisdiction among the intelligence agencies?

General CARROLL. I believe the first part of your question was, in my opinion, do I think it is worth it. I think it is worth it and absolutely essential to the security of our Nation and to the best interest of our Nation. I do not mean to imply it cannot be done more efficiently and economically, but I think it is essential.

As far as duplication is concerned, I am sure there is some duplication at various levels because of the magnitude and complexities of the problem. We also must bear in mind that it would be exceedingly dangerous to isolate each major problem to the point where it could be considered and addressed by only one activity. There is strength and enlightenment in having cross-considerations, cross-checks, and balances, dual approaches, as long as they are being coordinated and integrated and compared and made available.

The U.S. Intelligence Board, under the direction of the Director of Central Intelligence who has special authority both from the Congress and the President, devotes a great deal of effort to keep abreast of the kinds of problems implied in your question. Internal to the Department of Defense we have, as the committee referred to it, a many-layered structure of intelligence organizations ranging from DIA through the military departments, through the Unified and Specified Commands, to the combat commands in the field.

ALLOCATION OF RESPONSIBILITY

Mr. ANDREWS. I know the intelligence people have a tremendous job to do. I am still wondering whether or not we do not have too many people in the intelligence community and if we are not spending too much money for what we are getting.

Does your Agency do anything that CIA does not do?

General CARROLL. Under the directive of the National Security Council, Mr. Andrews, there is an allocation of responsibility as between the various departments and agencies of the Government. The principal responsibility for the collection and production of military intelligence vests in the Department of Defense. The Central Intelligence Agency has responsibility for coordinating all these activities, maintaining development of intelligence in order to support the President and the National Security Council.

As between DIA and CIA or other elements of the Department of Defense, we will have areas of overlap and redundancy, such as in our scientific and technical analysis of Soviet strategic capabilities, ICBM's, ABM's, and things of that nature, but we coordinate our efforts. We concentrate our efforts on things that each has a principal capability of accomplishing. We exchange the views that we have. We sometimes have differing views. When we have these differing views, we get together and hammer them out.

I think each contributes in a mutually beneficial way to the other. I think it would be utterly dangerous if only one did all of this, and not the others.

FUNCTIONS PERFORMED BY DIA BUT NOT CIA

Mr. LIPSCOMB. General, the chairman asked you a specific question which you ought to be able to answer. Does your Agency do anything

that CIA does not do? That can be answered yes or no, and then explain it. Does your Agency do anything that CIA does not do?

General CARROLL. My Agency engages in direct support of the military intelligence needs of the Joint Chiefs of Staff, the Secretary of Defense, to the extent it can be centrally produced at unified and centralized—

Mr. ANDREWS. That is evading the question more than answering the question. The question is just as simple as A, B, C. In court we would say "Give us a 'yes' or 'no' answer."

General CARROLL. The answer is "Yes."

Mr. Andrews. That is a good answer to that question.

Now let us pursue it further. We know for whom you gather intelligence, and we know the mission of the CIA. The second question is: What, for instance, do you do entirely separate and different from what the CIA does?

General CARROLL. We develop our military intelligence in such manner as to make it responsive to the planning and to the operating needs of the military forces. Consequently, even though CIA, for example, may be addressing order-of-battle questions pertaining to the Soviet Union, we address them in such manner and in such minute detail as to have them be responsive to the strategic plan of the Joint Chiefs of Staff, the contingency plans of the commanders, and more particularly in the scientific and development field to the research and development needs of the Department.

DIFFERENCE BETWEEN DIA AND NSA MISSION

Mr. ANDREWS. This is different work than the CIA. Is there any difference between your mission and that of NSA?

General CARROLL. DIA, Mr. Chairman, has a responsibility in intelligence production which in the Department of Defense is not engaged in at all by the National Security Agency. DIA in developing its intelligence production inputs receives a very valuable and very substantial input of ——— intelligence from NSA. All requirements for ——— intelligence which develop within the Department of Defense are submitted to DIA for validation in relationship to need and association with mission, and to determine whether or not it is already available. After this is validated, we then levy that requirement on NSA, which is also being responsive to requirements levied on them by other elements of the Government, bearing in mind that NSA functions not only on behalf of the Department of Defense, but also CIA, the State Department, and others. NSA, to the extent that it has the resources and the capabilities, collects that information and furnishes it back to DIA and other interested consumers.

NSA then, is a collection agency in a highly specialized and highly valuable field. DIA is one of those who generates a requirement that NSA undertakes to collect, and we are one of its most beneficial recipients when we receive the product and incorporate it into our overall intelligence production.

Mr. ANDREWS. Do you not collect intelligence?

General CARROLL. DIA itself; no, sir.

Mr. ANDREWS. You analyze.

General CARROLL. I would like to modify that one bit, sir. DIA, from the standpoint of operations as distinguished from management, is exclusively in the intelligence production business, not collection ——— DIA is not engaged per se in the collection business. We receive requirements. We generate requirements. Then we levy requirements, perhaps on NSA, perhaps on the Army, Navy or Air Force.

The Department of Defense has very substantial intelligence collection activities in which they are engaged, but DIA is not one of those. The Army, Navy and Air Force and the component commands and the unified and specified commands are the ones engaged in the collection business.

DIA REPRESENTATION AT FOREIGN EMBASSIES

Mr. ANDREWS. Do you have representatives at our foreign embassies?

General CARROLL. Through the attaché system, yes, sir.

Mr. ANDREWS. They are DIA people?

General CARROLL. They are Army, Navy, Air Force people operating under the administrative and operational control of DIA.

(Discussion on the record.)

Mr. ANDREWS. I get the impression that you think coordination eliminates duplication.

General CARROLL. I think, first of all, mission assignment is important, sir.

Mr. ANDREWS. I would say you have defended your branch of the intelligence community well.

General CARROLL. Thank you, sir.

Mr. ANDREWS. You see no need to change our intelligence setup.

General CARROLL. Considering the complexities associated with the performance of the intelligence mission today, Mr. Andrews, I see a great need for constant striving to improve. I see no need perceptible to me at the moment for any major reorganizational restructuring.

CONSOLIDATED INTELLIGENCE PROGRAM (CIP)

Mr. LIPSCOMB. May I ask a question at this point, Mr. Chairman? Going back to your Target-Oriented Display, TOD, what is the difference between TOD and the consolidated intelligence program?

General CARROLL. The consolidated intelligence program, sir, addresses only those activities, facilities and resources which come within its stated purview, only those in the main which are associated with responses to national requirements, responses to requirements which serve more than one element of the Department of Defense, responses to broad planning requirements, responses to staff needs at major command levels.

They do not include generally, sir, those resources in the Department of Defense which are integral to the component commands or combat commands, because the requirements for those resources are judged primarily on the basis of the combat mission. So, tactical intelligence resources are not included in the central consolidated intelligence program.

Secondly, the consolidated intelligence program addresses only one facet of the overall intelligence programing categorization in the Department of Defense or the Government. It does not address the CCP, the consolidated cryptologic program, which is NSA's program. It does not address the CIAP, the Central Intelligence Agency program. It does not address other programs which are contributory in a major way to the performance of the intelligence mission.

The TOD, the Target Oriented Display, sir, is designed to bring all of these resources that presently are separately judged in separate programs, into a merger so the total resource, the combination of all of these, can be reviewed in relationship to the specific purposes for which the combined resources are being applied to make judgments whether or not there is an overallocation of resource to one particular area because of the various agencies that might be involved, and to make judgments as to whether or not the totality of the resource is proportionate from a cost-effectiveness standpoint to the value of the information being received.

RECOMMENDATIONS OF CIP REVIEW GROUP

Mr. LIPSCOMB. According to the letter of December 27, from the former Deputy Secretary of Defense, there was a CIP review group that reported on October 14, 1968. According to the letter, it says:

The review group recommended retention of certain aspects of the existing CIP process, including the present program change request, program change decision procedure, in order to price out in some detail the decision of major issues, both as a means of adjusting the 5-year Defense program as well as providing such budgetary guidance to the Services.

Why could this not be included in the TOD program?

General CARROLL. The TOD, sir, should not really be referred to as a program in the sense that the consolidated intelligence program uses the same term. The TOD is really a project. It does not constitute a program in a budgetary or fiscal sense. It is a management tool.

Through the medium of exploiting the visibility in the various areas of intelligence activity, which we should be enabled to take advantage of within the TOD, we should be able to do better programing and better decisionmaking in the consolidated intelligence program or the other programs with which you are familiar.

The TOD is not a separate program, sir, in the sense of its being a program for programing decisions. It is a management tool to assist in better development of such as the CIP as well as the other programs to which I alluded, and it is a management tool to permit determination of alternate levels of effort in relationship to varying returns so that the decisionmaker will have an opportunity to make judgments as between alternate considerations.

INCLUSION OF TOD IN THE CIP

Mr. LIPSCOMB. I do not want to get into a discussion of whether program change requests and program change decisions are a management tool or are a program. I do not know why, as described in the Secretary's letter, this particular part of the CIP process could not be included in your target oriented display.

General CARROLL. All of the resources and the assets in the CIP, all of them, without exception, are included in the TOD. They are included in combination with all similar resources that are presently being programed for in NSA, in CIA, and in other areas of activity.

Mr. LIPSCOMB. Let me ask it backwards, then. Could the TOD, target oriented display, be included in the CIP program?

General CARROLL. It would be possible if someone wanted to make that decision, but that would entail, instead of having several programs in the intelligence area such as the NSA program, such as the program I am here before you on today, such as the program that Mr. Helms comes before you with, such as the program that others that I believe you are familiar with come before you with—if all of those were to be put in one program, then it could be done.

But, even then, the TOD would not be that program. The TOD would merely be a manner in which information was being collected to permit close scrutiny of potential issues.

REDUCTION IN CIP

Mr. LIPSCOMB. The consolidated intelligence program, as a result of this review group's action, has been cut down from what it was 18 months ago.

General CARROLL. Would you like me to elaborate on that, sir?

Mr. LIPSCOMB. No. But that is the case.

General CARROLL. Yes, sir, it is.

Mr. LIPSCOMB. Would you say it was cut in half or cut in quarter?

General CARROLL. From the standpoint of administrative detail, the revised program that we are pursuing will effect very substantial reduction. This year under the revised approach—

Mr. LIPSCOMB. How severely was it cut? Have you any idea?

General CARROLL. We are going through it. We are just beginning to go through it now.

Let me put it this way: Previous to this year and previous to the critical review we made of the CIP, all of the ——— facilities, activities, and organizations that are in the consolidated intelligence program submitted program change requests. This year we are asking only 40 percent of the activities, from a dollars standpoint rather than from a numerical standpoint, to submit a program change request.

That is being required this year on what is referred to as a zero base review basis, so we will get data in considerable detail as to 40 percent. As to the remaining 60 percent, the services are told that they need not submit any program change requests. They are told, since they may wish to and we cannot deny them this right, that if they see fit on their own initiative to submit a program change request, then if it be one for resources 25 percent in excess of the presently approved resource level, they have to submit full and detailed justification concerning the overall organization. If it be one between 10 percent and 25 percent, then they have to submit considerable justification because it is a major change. If it be less than 10 percent, very minimal justification is required.

As to the other 60 percent, I emphasize that if such program change requests are submitted, they will be done at the initiative of the military departments and on their own election.

In addition to that, another fundamental change in the handling of the CIP this year is the identification of intelligence issues, which calls for broad studies, as determined by the Secretary of Defense, of selected areas of activity with a view toward determining adequacy and effectiveness of the resources being applied, and the determination as to whether or not different force levels could be adequately responsive to the identified needs.

TOD AND CIP COMPUTER SYSTEMS

Mr. LIPSCOMB. Does the CIP take a different computer system than the TOD? They both use computer systems; do they not?

General CARROLL. The TOD is being computerized. The CIP is not engaged in anything comparable to the very extensive and detailed computerization of the TOD.

Mr. LIPSCOMB. Is it on a computer system?

General CARROLL. Not specifically. We have certain data associated with it which is computerized, but not the CIP as such; no, sir.

Mr. ELLIOTT. The CIP is part of the overall Department of Defense programming system. In other words, it is just one program of the entire complex of programs that make up the entire DOD 5-year defense program.

Mr. LIPSCOMB. Has any thought been given to putting the CIP—you have two programs which are basically complementary here, your management tool and your CIP program—

General CARROLL. I am sorry, sir; it is quite clear I have not elaborated on this to the point of bringing understanding. There is no relationship—

Mr. LIPSCOMB. All you have to say is no.

General CARROLL. No, they cannot be. It has not been considered because it would not be conceivably rational at this point in time to do so.

Mr. LIPSCOMB. In developing your TOD computer system, it would be impractical to try to use the same computer setup so you—

General CARROLL. It would, very much so, sir.

Mr. LIPSCOMB. You could not do it?

General CARROLL. No, sir.

Mr. LIPSCOMB. That is all.

COLLECTION OF COMMUNICATIONS AND TRANSPORTATION DATA

Mr. SIKES. On page 3 of your statement, General Carroll, you mention the varied needs for intelligence information in the Department of Defense, and the urgency of some information versus the less urgent but highly important requirements to keep abreast of the transportation, communications, and military developments in ——— other areas of the world.

You also state on page 7, regarding information reports (IR's) that neither the fact that information is not needed immediately nor the fact that it is tolerable for some time to elapse before it enters the data base, permit the judgment that it should not have been collected in the first instance.

This brings to mind a number of questions which I think are pertinent in this immediate area. For instance, what is the require-

ment for the need to know about the transportation and communications developments ———.

General CARROLL. ———.

Essential elements of overall military capabilities have to do with transportation and communications.

In the event any of our commanders are required to exercise contingency plans, such as had to be done in relationship to Lebanon some years ago, it is imperative that information concerning transportation and communications be available in our holdings in order to support the contingency plans of the commander.

With reference to the Dominican Republic incident of a few years ago, the fact that we had available information pertaining to communications and transportation materially facilitated the movement of our forces there, enabled them to develop the kind of plans that were required for efficiency of operation and for success of operation after the activity was undertaken.

PUBLISHED DATA—MAJOR SOURCE OF INFORMATION

Mr. SIKES. In general, is it not possible to obtain the essential information from publications, maps, publicity generated from within the country for tourists and others, rather than obtaining it through an intelligence-gathering service of our own? To what extent do you rely on sources of this type in order to save money?

General CARROLL. They represent a very substantial source of information. These sources are thoroughly exploited, sir. We have to have collection in some places of our own to augment what we acquire through the medium of exploiting public source information.

We also undertake to acquire through others who are engaged in related activities, the related information they may acquire. I could offer an example of this, sir, where we do try to refrain from collecting things ourselves which are available more cheaply and more readily through other sources.

Mr. SIKES. That is the primary thing I am getting at.

General CARROLL. ———.

Mr. SIKES. Tell us briefly now. I shall get into that in more detail later.

General CARROLL. ———.

MILITARY VERSUS SOCIOECONOMIC INFORMATION

Mr. SIKES. How do you establish a line between intelligence which is strictly of use in the military community on transportation and communications and these areas, and how do you avoid getting in the socioeconomic information area?

General CARROLL. We cannot avoid getting into it entirely, because there are social and economic impacts on matters of military significance. We do not collect that kind of information ourselves within the Department of Defense, sir. That information is collected by and produced by such activities as CIA and perhaps the State Department. We merely use only that portion of the information which has applicability to our overall mission. We do not ourselves go out and try to collect that kind of information or to produce it in finished form.

COLLECTION IN EXCESS OF NEED

Mr. SIKES. How do you draw the line on the collection of information of doubtful value in the fields of transportation and communications, for instance? At what point do you consider that you have obtained the essential information rather than a lot of information about back-country roads, et cetera, that may or may not be necessary in the event of trouble in the area?

General CARROLL. Normally we try to tailor our collection of data of that kind to be responsive to the stated needs of the commanders who are developing contingency plans in association with that particular area. We will provide terrain analysis studies, for example, which are fundamentally associated with main lines of communication, other lines of communication which in turn may be related to plans of the commander, his requirements with respect to this, as to the kinds of data he needs. Except in unusual circumstances, we would not be collecting and, therefore, we would not be producing information concerning backroads. However, we would be collecting —

Mr. SIKES. Yet there could be circumstances where knowledge of by-passes and back country roads could be extremely useful to a commander. So how do you know what information to collect?

General CARROLL. We try to do it in relationship to what appear to be the strategic objectives in the country. Backroads which might provide an alternate route in that connection would fit within our collection and production programs.

PERSONNEL ASSIGNED AS ATTACHÉS

Mr. SIKES. How many military personnel are assigned to _____ from your organization?

General CARROLL. You may recall, sir, I stated the only representation that I have outside of Washington, with the exception of two liaison offices, one in Ottawa and one in London, is the attaché system. In _____ for 1970, DIA will have _____ personnel. That includes Army, Navy, Air Force, as well as support personnel. That includes U.S. civilians as well as foreign nationals.

Mr. SIKES. What is the breakdown between civilian and military personnel?

General CARROLL. I can supply that for the record, sir.

(Information provided the committee is classified.)

General CARROLL. I would like to mention that before DIA became involved in the attaché system in _____, such as back in 1965, there were _____ people authorized in the same areas in _____. Today we have _____. Before DIA there were eight aircraft assigned to the attaché offices. Today we have four.

VALIDATION SYSTEM

Mr. SIKES. On page 4 you speak of intelligence collection requirements and of your validity system. You state:

In 1966, the nonvalidation of specific requirements was 10 percent. In 1968, the nonvalidation of specific requirements was 27 percent due to a more stringent validating criteria. This has also reduced the number of specific require-

ments received by the collection managers in DIA. In 1966, over _____ specific requirements were processed in DIA. In 1968, about _____ specific requirements were received—a reduction of almost 50 percent. This is attributed in large part to the continuing indoctrination of originators of specific requirements.

Since your budget for specific requirements has been reduced by almost 50 percent, tell us why your budget and the budgets of services to whom these requirements are passed on, continue to increase?

General CARROLL. First of all, we address specific requirements here because that was a subject matter which was addressed in the team's report. Specific requirements represent one facet of the overall intelligence collection mission. There are others, as mentioned earlier in my statement.

The reduction in specific requirements does not necessarily represent a reduction in collection workload so much as it does a refinement in the expression of the requirement, a better focusing of attention by the collector on the essential elements of the information, and a consolidation of requirements of varying collectors to a point where they will be responsive at one time to the greatest number of users in the Department of Defense.

REDUCTION IN ORDER OF BATTLE PRODUCTION

Mr. SIKES. On page 8, you mention a plan covering all DOD order of battle production was published _____. This appears to have been a refinement and a reduction in order of battle production. Do you feel that you reached the optimum level, or will there be further refinement and reduction in the number of these?

General CARROLL. I believe there will be further refinement and better utilization of the resources associated with the performance of this kind of mission, sir.

Mr. SIKES. Does this represent a scaledown in personnel requirements and equipment requirements?

General CARROLL. I believe it ultimately should, sir.

Mr. SIKES. Has it resulted in such reductions to date?

General CARROLL. In the attaché system it has resulted in very substantial reductions. When DIA assumed responsibility for the attaché system in 1965, there were 1,880 personnel in the separate Army, Navy, and Air Force systems. DIA at the time it assumed responsibility reduced that number down to somewhat in excess of 1,500. By end fiscal year 1970, we will be reduced down to approximately 1,100.

Mr. SIKES. Is not a similar reduction reflected in the area of personnel required for analysis, filing, et cetera, in this particular area?

General CARROLL. No, sir, it has not had that kind of impact. What it has done, Mr. Chairman, is permit us to allocate the limited resources that we have to the better performance of the mission we have.

You may recall that the committee took note of backlogs which had accumulated and which we were having difficulty keeping abreast of. I believe that all of these actions are designed to permit a more smooth flow, more timely handling and more in-depth analysis of the data being acquired.

Mr. SIKES. Mr. Garrity.

EFFECT ON SERVICE BUDGETS OF DIA FORMATION

Mr. GARRITY. General, since you have assumed this responsibility from the services through a transfer of responsibility, why don't we see a reciprocal reduction in the service budgets? This would have entailed tremendous expenditures on the part of the services in prior years, but we do not find any reductions there.

General CARROLL. First of all, Mr. Garrity, there were fully proportionate reductions in the service budgets at the time DIA came into being. I mean proportionate to the numbers of personnel that were placed in DIA.

Mr. GARRITY. Are you talking now about the transferring of Defense agencies?

General CARROLL. No, sir. I am talking about the establishment of the Defense Intelligence Agency and the assignment of its mission. All the personnel the Army, Navy, and Air Force had that were identified as being associated with the performance of the mission which was being delegated to DIA were transferred to DIA, and the service personnel authorizations were reduced accordingly.

The services maintain quite large organizations to perform functions which were not transferred to the Defense Intelligence Agency. The Navy this year, for example, was asking for a substantial number of additional personnel in support of the Scientific and Technical Intelligence Center here in the Washington area and in support of the Naval Reconnaissance Technical Support Center. All of this has to do with the performance of missions which are not assigned to DIA. The Scientific and Technical Intelligence mission was decided by the Secretary of Defense and the Joint Chiefs of Staff to remain vested in the Army, Navy, and Air Force.

Mr. GARRITY. You are saying, in effect, that although you assumed responsibility for funding for this new operation, there were reciprocal increases in the service budgets for other activities?

General CARROLL. That is correct, sir.

PROJECT COINS

Mr. SIKES. On page 16 you mention the Washington level Intelligence Community Computer Communications System (COINS) which is intended to make possible on-line queries by an analyst in one agency to the computer in another.

For the record, give us the total cost to install and operate this system.

(The information follows:)

The Washington-level community on-line intelligence system (COINS) is an experiment to test the feasibility of interagency intelligence information handling making use of interconnected computer-based files. The COINS essentially is a tie-in of existing computer systems and automated data bases in existence in the various participating agencies. The costs directly attributable to the DIA in support of the COINS experiment are as follows:

Prior to fiscal year 1969.....	\$393,000
Fiscal year 1969.....	282,400
Fiscal year 1970.....	295,900
Total	971,300

VALUE OF PROJECT COINS

Mr. SIKES. In terms of time saved and value to the country, are you convinced it is worth the investment in operating cost involved?

General CARROLL. Did you want that for the record?

Mr. SIKES. No, I would like the answer now.

General CARROLL. The development of the computer communications system as between the various Washington-level activities in the intelligence community stems from a high-level direction that this sort of activity be engaged in. This is designed better to facilitate the flow of information and the more beneficial exploitation of data available as between significant agencies of the Government—NSA, CIA, DIA, and the State Department.

This is still an experimental project, sir, but it is one which, if it proves out along the lines that it appears to be moving now, will be highly beneficial, not only in improving efficiency in the information handling area and mutual exchanges between interested agencies, but also enable the individual analysts themselves better to keep abreast of the increasing flow of information which is being received.

Mr. SIKES. For the record, tell us the cost per normal working hour for this system.

General CARROLL. Yes, sir.

(The information follows:)

The cost per normal working hour for the COINS experiment based on dedicated costs accruing solely to the project (i.e., communications equipment and circuits) would be approximately \$121 per hour.

Mr. SIKES. Was this committee directly requested to provide funds to install this system?

General CARROLL. To provide that portion of the system which comes within DIA's funding responsibility, but only that portion of it, from the standpoint of DIA.

EQUIPMENT REQUIRED FOR PROJECT COINS

Mr. LIPSCOMB. May I ask a question at this point?

Mr. SIKES. Of course.

Mr. LIPSCOMB. Is this a commercial, off-the-shelf system?

Captain McCUE. Yes, sir, it is. It provides capability for making use of the existing systems in three agencies—NSA, CIA, and DIA—and using these automated data that are currently in being remote terminals will be used to query certain identified data bases in those three systems. It is not a new system, sir. COINS is essentially a tie-in of existing computer systems and automated data bases. Interconnection of computers through a common switch to permit agencies to query the files of another agency.

Mr. LIPSCOMB. But the equipment is new, is it not, at points where they have the console and where the operator queries the system?

Captain McCUE. The technology, yes, sir. The equipment items in themselves are not new.

Mr. LIPSCOMB. Is that off the shelf?

Captain McCUE. Yes, sir.

Mr. LIPSCOMB. What company is making this?

Captain McCUE. Sir, we are using in DIA a 360/30 IBM computer as a communications switch to tie the computers of the three agencies together.

Mr. LIPSCOMB. Just to review it a little bit, this is a console, and the operator who makes the query either types it out or does something to query the computer, is that right?

Captain McCUE. Sir, the consoles are located in the agencies concerned. The query comes from the consoles in one agency through the communications switch, that I just mentioned, to the computer data base of another agency. The answer is received through the same route.

Mr. LIPSCOMB. Does the operator sit at a desk and make the query?

Captain McCUE. At the console, or terminal device, yes, sir.

Mr. LIPSCOMB. He views the response when it comes back?

Captain McCUE. Yes, sir. In the case of the COINS, they are using only teletypewriter machines.

Mr. LIPSCOMB. This is a rather new technique, is it not?

Captain McCUE. Sir, the technique is not new. Joining the agencies through a common switch is new, yes, sir.

Mr. LIPSCOMB. You say the equipment required is off the shelf?

Captain McCUE. Yes, sir. The equipment being used is off the shelf.

Mr. LIPSCOMB. What company is selling the system? What kind of machine or system are they selling?

Captain McCUE. The terminals are Western Union devices, standard teletypewriter machines.

Mr. LIPSCOMB. It is not the kind that is viewed?

Captain McCUE. This is not a visual display device. There are no cathode ray tubes connected with the COINS system.

Mr. LIPSCOMB. You say Western Union—

Captain McCUE. Western Union supplies the terminal units, yes, sir, the remote query stations where the analysts sit and ask the questions.

REQUIREMENT FOR PROJECT COINS

Mr. LIPSCOMB. The General said this requirement was laid on by higher authority?

General CARROLL. Yes, sir.

Mr. LIPSCOMB. What do you mean by "higher authority"?

General CARROLL. I had in mind in this instance the President's Foreign Intelligence Advisory Board and its advice to the highest authority that they serve. There has been, quite understandably, considerable attention focused—

Mr. LIPSCOMB. What do you mean by "higher authority"? Who was this higher authority?

General CARROLL. The President, the President's Foreign Intelligence Advisory Board reports to the President. Under direction of the President, one of the items that they have been devoting very special attention to is the improved automation and interchange of automated relationships between elements of the intelligence community, taking cognizance of the explosion of information which has transpired in recent years.

Mr. LIPSCOMB. What kind of communication came from the Intelligence Board to tell you to do this?

General CARROLL. These directives came to the Director of Central Intelligence, since the COINS system is one which, as we mentioned, is an interagency effort to provide this kind of interface between the separate major elements of the intelligence community.

Mr. LIPSCOMB. So the Intelligence Board put out a directive?

General CARROLL. Which would have been approved by or on behalf of the President.

Mr. LIPSCOMB. This system of querying the computer and getting back information was laid on you—

General CARROLL. Not necessarily this specific one, but the general principles which this project is endeavoring to further. Reports pertaining to this particular one are made back to the President's Board. They have been very much interested in it because it is an interagency effort to develop an automated relationship.

IMPLEMENTATION OF PROJECT COINS

Mr. LIPSCOMB. Do you have responsibility for putting in the whole system?

General CARROLL. No, sir; just a portion of it. We collaborate with the other agencies under the general guidance of DCIA and the U.S. Intelligence Board in the whole system. We are responsible for programing the computer switch. We also are responsible for the development of the data bases in our own computers which are deemed to be of use to the other agencies that are participating in COINS.

Mr. LIPSCOMB. In your budget you are paying for only the part that pertains to your organization, DIA?

General CARROLL. That is correct, sir.

EQUIPMENT INSTALLATION

Mr. LIPSCOMB. Who is doing the coordinating and installation? What company?

Captain McCUE. Sir, there is no company. NSA has been assigned the directorship of the entire program. General Carter has appointed a program manager, Mr. George Hicken. All of the effort is managed and directed by Mr. Hicken through the agencies participating, sir. There is no company involved in any part of this development, sir.

Mr. LIPSCOMB. Who is doing the installation? Western Union? Do you have the in-house capability to put in the machine and to get it working and tie up the telephone lines and everything?

Captain McCUE. No, sir.

Mr. LIPSCOMB. Who is doing the work?

Captain McCUE. NSA does practically all of the hardware work on the terminals. Our security people, DIASO, do the wiring within the building, ———. All three agencies, sir, have in-house capability. The DCA gets very deeply involved when a wire is stretched between any two of the agencies. So they are involved. It is all, to date, Government involvement.

Mr. LIPSCOMB. It is all Government installation?

Captain McCUE. Yes, sir. The specific—

Mr. LIPSCOMB. You have no outside contract for this work?

Captain McCUE. Sir, there are rental equipments involved in DIA. The computer switch is rented equipment. The maintenance of that rented equipment is the responsibility of the company from which we rent it.

Mr. LIPSCOMB. Who do you rent that from?

Captain McCUE. Sir, it is an IBM machine, International Business Machines.

Mr. LIPSCOMB. Have you hired consultants to help you put it in?

Captain McCUE. No, sir.

Mr. LIPSCOMB. It is all in your shop?

Captain McCUE. Sir, I am speaking only of DIA's participation. What NSA is doing at its particular location, sir, I do not know.

Mr. LIPSCOMB. Aren't you all going to use this same thing to coordinate information?

Captain McCUE. We are using it now; yes, sir.

Mr. LIPSCOMB. To coordinate information between all of you?

Captain McCUE. Sir, it is to make available to one agency the data bases of the other two agencies, in addition, State and the National Indications Center have availability to the data bases from all three agencies.

COORDINATION OF PROJECT COINS

Mr. LIPSCOMB. I had the impression that for better intelligence, so you would have coordination and be able to use each other's intelligence, you were setting up a system to inquire of your data bank. You are putting in this system, which is new to you, is it not? What kind of coordination is going on? You tell me that DIA is doing their share, and NSA is doing theirs, and DCA is doing theirs. Do you have a board working? Do you have a consultant? Do you have a firm? How are you getting this coordination?

After you tell me, we will look and see how much is budgeted for the program and how it is financed. How are you doing this? How do you know that your system will coordinate with CIA's or NSA's?

General CARROLL. That might call for a technical response for which Captain McCue is better qualified than I am, sir.

Mr. LIPSCOMB. Is there a coordinating committee?

Captain McCUE. Yes, sir; there is.

General CARROLL. What was mentioned was that General Carter has been given the principal action responsibility to pull all facets of this together. He has been given that by the Director of Central Intelligence on behalf of the community.

In addition to that, we have a large committee in the U.S. Intelligence Board which is monitoring and providing guidance and making value judgments and reports to the DCIA pertaining to this operation.

Mr. LIPSCOMB. What is the name of that committee?

Captain McCUE. Information Handling Committee.

Mr. SIKES. Thank you very much, gentlemen.

The committee will resume its hearings at 2 o'clock.

AFTERNOON SESSION

Mr. WHITTEN. The committee will come to order.

NEED FOR PROJECT COINS

General, will you explain why analysts require remote data access consoles in their offices to query computers?

General CARROLL. Mr. Chairman, the purpose is to permit rapid entry into the data base by an analyst on a direct basis. In the event the direct access is not provided to him, he has to develop his queries, send them over to the automatic data processing center, and wait until he gets a return back in response to his query. Under an on-line arrangement he will be making inputs into the data base directly through his console connection with the computer, and querying the computer to extract from it, on a selected basis, that which he needs in support of a particular project that he may be working on.

This arrangement will maximize the application of advanced information sciences technology to the handling, processing, and evaluating of information in the intelligence business.

VALUE OF PROJECT COINS

Mr. WHITTEN. Our information is that this operation is conducted in four different buildings with 10 more terminals scheduled in July 1969, and is currently in limited operational use.

What is there to indicate this is worth the effort or the manpower or the cost, or what does it contribute in everyday terms, General? You have it on an experimental basis. That being true, when will you determine whether or not it is worthwhile?

You have given me a pretty good answer about why you tried it out, but I do not think you have given me anything on whether or not you have decided it is worthwhile.

General CARROLL. As I mentioned, sir, this is being done on an experimental basis. The experiment is to conclude at the end of this fiscal year. It is in limited operational form now to the point that we are able to formulate, pending final results upon termination of the experiment, some hopeful judgments.

I would like Captain McCue, my chief of automatic data processing, to address that question, if he will, please.

Captain McCUE. We have placed in the system those data which the analysts most frequently query. By doing this, we provide analysts rapid access to the data they need in their day-to-day business without requiring the searching of voluminous files and many data bases to achieve the same results.

UTILIZATION OF INFORMATION

Mr. WHITTEN. That would make sense if I had not had time to read the General's statement. The statement, as I read it, was that only one out of ——— were of some urgency, and it really did not make all that much difference about how much delay was involved in this.

Now you say the justification of this is to provide rapid access to much asked for information. Yet your statement indicates that is very slow, indeed, if I understood you correctly. If I did not, you explain it.

General CARROLL. This refers to utilization of the information after it has been incorporated in the magnitudinous data base. It is now available for utilization by the analyst in support of the various projects that he is working on. He will have made many of the piecemeal inputs into the data base in his processing of the information reports to which you have just made reference.

The analyst participates in maintaining currency in the data base by making inputs to it from intelligence data which come to him from many sources, including the information reports to which you have just referred. After having done that, however, he has in his data base now, or in data bases which are contributed to by other analysts, also, a vast accumulation of data. By having this direct access to the computer, he is able to select from it that which he needs in a very selective manner to support the particular project he is working on at a particular time.

It is not merely a question of timeliness in relationship to immediate access alone from the standpoint of urgency of any single piece of information. It is important from the standpoint of the contribution which accumulated data which at one time had no immediate currency now have in relationship to a particular study which he is doing.

Insofar as any information reports which may not as yet have been incorporated in the data base, he will already have been the recipient of those, will have screened them, and will know that those within the period of the last 10 or 12 days or so are in his own hands to be taken into consideration in addition to what he derives from the data base query through his console arrangement.

VALIDITY OF NEED FOR RAPID ACCESS

Mr. WHITTEN. Following this up, it may be I do not understand it, but turning to page 4 of your statement, with reference to the panel which reviewed your intelligence-gathering procedure and system following the report of the committee last year, you say:

The Panel operated in this manner. Every IR, intelligence report, received by the DIA Dissemination Center was reviewed in detail by each member of the Panel. When an IR was judged by the Panel to be of questionable value for dissemination, the receiving analysts were asked by questionnaires whether or not the IR was of value, and to indicate in specific terms what was of value. When an IR is judged to be of a time sensitive nature, the receiving analysts were asked by the Panel to state whether or not the information had already been received by electrical message.

Regarding the number of IRs containing time sensitive information, the Panel found that in more than ——— IRs that were screened, only one was judged to be of a time sensitive nature. The panel's follow-up revealed that the information in this IR had been previously reported by electrical message.

With respect to the worth of the information being reported, of the IRs processed by the panel, less than one-half of one percent were determined by the analysts to be of insufficient value to warrant dissemination or retention.

Earlier you said this delay really made no difference. If time is not of the essence, and if you have a production process that moves along

at a leisurely pace, timewise, why put in one step such as you would do here, and do it only on an experimental basis.

Some years ago I was in Russia, and they had some of the most modern methods of inline production, but every once in a while you would run into a bottleneck where they had people handling hot bolts by hand. The speed of one operation was affected by the slowness of the other.

I cannot see that your statement makes much of a case for speed at this point.

General CARROLL. I see your point.

First, of all, I would like to state that the data base which the analyst will be querying in the computer is comprised of information which is derived not only from the information reports which we are discussing in my statement here, but also from all other sources of intelligence input.

In addition to that, the data at the time it is incorporated in the intelligence data base will be formatted in a manner to conform to the previously determined needs of the analysts who have to work with this kind of product.

So, in the data base at the time that the analyst is querying it on his console is not only the data which is derived from these information reports, but also data which is derived from many other sources. The timing aspect that we were talking about has applicability in different manner in each of the two instances.

In my statement where we were talking about time sensitive information, we were talking about that kind of information which could have immediate or near-term significance from the standpoint of current events or have an impact on a product that had to be immediately processed. In this sense the IR information was not time sensitive.

Most of the information which is in the data base to which we are referring now is not in itself time sensitive. To the extent that anything in there was time sensitive, it will already have been processed and otherwise used and made available to those to whom it might have significance.

The timing that we are talking about here is the time that it saves the analyst in being able to extract from the data base the kind of information that he needs, whereas if he had to do it the more laborious way which has prevailed primarily up until the present, it would take him much longer to do the job. So, there is vast time savings in having this capability.

EVALUATION OF PROJECT COINS

Mr. WHITTEN. If it saves time, it saves personnel. How much reduction in personnel do you recommend as a result of replacing people by this mechanical means?

General CARROLL. In the first place, Mr. Whitten, as mentioned, this is still in limited operation, and it has not yet proven itself.

Mr. WHITTEN. Its chief value is so you won't get caught with 517 lineal feet of unprocessed reports? You thumb through the information and pass it on and get it on the shelf.

General CARROLL. No, sir. The particular project we are discussing here does not have any direct relevancy to the manner in which the

information is presented into the data base in the first place from the standpoint of the analyst reviewing it and seeing what is available.

Mr. WHITTEN. Are you asking for any additional units of this kind, pending final determination?

General CARROLL. Captain McCue?

Captain McCUE. Yes, sir, we are asking for additional terminals in the 1970 time frame. That is part of the increased budget request.

Mr. WHITTEN. You are doing it on an experimental basis. Why can't you do it on 12 in four different buildings? Why do you have to have more if the whole thing is experimental? You do not mean you buy them before you decide whether the experiment is worthwhile.

General CARROLL. Our experiment was designed to encompass this kind of interplay from this number of locations and this number of analysts having access into the data base. Our experience thus far, Mr. Whitten, has been sufficiently encouraging and favorable so we are quite convinced that we are going to go forward with an expansion of this program.

EXPANSION OF PROJECT COINS

Mr. WHITTEN. How many urgent situations do you have in the course of a normal workday that would require data consoles in the analysts' offices? In other words, where is the end of this? How many urgent situations do you have that would justify expansion of this program?

General CARROLL. The benefits to be derived from this are not merely associated with time-urgent problems. In the main, the use the analyst will make of this will be in the development of major studies. On occasion it would be in relationship to some quick reaction response that might be required as a result of a request from the Joint Staff or the Secretary's Office. He will be able to make a rapid retrieval of the data to meet the timing of the request in a much more rapid fashion.

COLLECTION OF INFORMATION OF DOUBTFUL VALUE

Mr. WHITTEN. General, I had to be in another subcommittee this morning. May I take just a minute to say I am sorry I could not be here. I have gone over your statement and the earlier questions that have been asked.

As you know from our report and from questions last year, there is much to lead me, at least, to feel that you are caught with a system that was started off on years ago, and we might be accumulating much information that might be worth much to somebody who wanted something like that, but with time, with contracts and other things, they are of questionable value.

I believe what you just said about these data consoles will help move the workload out so if somebody checks you over, they won't find 517 lineal feet of unprocessed reports.

The question still rests with us whether we are reviewing the information we are getting and scaling it down to usable proportions, or whether we continue to carry on contracts just because we are in the habit of it.

LONG-RANGE THREAT PROJECTIONS

For instance, there are so many areas that do raise questions. On page 18 of your statement you discuss DIA's new function of long-range threat projections. Where does this new function arise? Under whose order and why was this new function assigned to you?

General CARROLL. It arose as a requirement of the military departments. It was reviewed and analyzed by the Joint Chiefs of Staff, and by the Joint Chiefs of Staff, and the Secretary of Defense; DIA was directed to undertake that portion of the overall problem which my statement alludes to.

Mr. WHITTEN. Will you supply to the committee copies of these orders and findings?

General CARROLL. I shall do so.
(The information follows:)

The orders and findings from the Deputy Secretary of Defense directing the DIA to assume the function of long-range threat projections are provided below.

THE DEPUTY SECRETARY OF DEFENSE,
Washington, D.C., November 1, 1968.

MEMORANDUM FOR THE CHAIRMAN, JOINT CHIEFS OF STAFF

Subject: Long-range threat projections.

References:

- (a) DepSecDef memo for Chairman, JCS, dated February 2, 1968.
- (b) Study of the Department of Defense intelligence threat projections, dated April 14, 1967.

This responds to your memorandum, JCSM 408-68, dated June 27, 1968.

You recommended that we apply the spaces identified for reduction under BALPA to satisfy the personnel and financial requirements recommended in reference (a). This is not suitable because BALPA savings have been applied to project 608 goals, and are thus not available.

Further, you report that the military departments could not identify specific spaces with the function to be performed by DIA. This is understandable in part; nevertheless a considerable amount of long-range threat projection goes on annually in the various studies conducted by the individual military departments: reference (b) reported 187 separate and duplicative efforts in long-range threat projection by study groups in fiscal year 1967.

I recognize the difficulties which the various savings and cutback programs have imposed on the military departments this year. I further understand and appreciate their fears of losing the resources which they use for projecting long-range threats, for making long-range threat applications, and for justifying excursions from the common threat base provided by DIA. Yet it is apparent that considerable savings can be realized by reducing the plethora of separate and duplicative efforts in projecting long-range threats for use in studies and war games.

In view of the various cost-reduction programs currently underway in DOD, I feel that it is not feasible to set up the full program in fiscal year 1969. On the other hand, I do not desire to delay commencement of the program any longer. The program is hereby approved, and is to be included in the 5-year defense plan. DIA is to assume responsibility for discharge of the long-range threat projection function in accordance with option 2 of reference (b). Accordingly, the Chairman of the Joint Chiefs of Staff is requested to identify manpower spaces to be transferred from the military departments to DIA to form a nucleus or cadre on which the full organization can be built. These spaces need not, of course, necessarily come from intelligence organizations.

The cadre is to form in fiscal year 1969, and remaining spaces are to be identified and to be transferred in fiscal year 1970 to build to the level set up in

reference (b), for a total of 51 spaces (22 military, 29 civilian). I suggest transferring the cadre spaces using the following guidelines:

Army: Two military (one O-6, one O-5), one civilian (GS-14);

Navy: One military (O-6), one civilian (GS-14);

Marine Corps: One military (O-5);

Air Force: One military (O-6), two civilian (one GS-15, one GS-14); and

Joint War Games Agency: One military (O-5).

The intent here is to set up the manpower nucleus around which the program will be built. Severe funding restrictions in fiscal year 1969 require that financing of this function come from DIA reprogramming of funds until the fiscal year 1970 budget cycle. DIA is to commence now to produce those portions of the long-range threat projection function which it can handle using the limited resources available. I desire a list of those long-range threat projection functions which cannot be produced with resources provided for fiscal year 1969 under this memorandum.

Please recommend a list of manpower spaces to be transferred, using the guidelines set forth above. Appropriate changes to the fiscal year 1969 program should be made to reflect the transfers. DIA and the military departments should adjust their fiscal year 1970 budget requests to reflect the total of 51 spaces to be transferred for fiscal year 1970.

PAUL H. NITZE.

DIA RESPONSIBILITY FOR LONG-RANGE THREAT PROJECTION

Mr. LIPSCOMB. What did you mean by "that portion"?

General CARROLL. There is a requirement on the part of a military department to do long-range planning in conjunction with their own force-structure development and in conjunction with their own development of strategy and tactics.

Mr. LIPSCOMB. General, by "that portion," do you mean that this is a study or a project that is divided between DIA and others?

General CARROLL. No, sir. I am trying to come to the requirement. The military departments have a requirement to do long-range planning in conjunction with their own force-structure development. They always have been doing this. However, because of the advances in technology, the leadtimes that normally used to be employed have now been vastly extended, and the services have to cope with leadtimes as much as 20 years into the future.

One of the essential ingredients in their long-range planning is an appreciation of the threat as it will exist in the time frame for which they are doing their planning. If it is 20 years into the future, they need an appreciation of the threat of a conflict environment that might exist at that time, the military capabilities of the particular nation involved, so in turn they can then view their planning in relationship to what the military threat requirements might be at that particular point in time.

The national intelligence estimates which are produced in the intelligence community normally only go _____ years into the future, because hard evidence does not support projections beyond that. The national intelligence community, going back a few years ago, did endeavor to expand in that particular area, but was never able to do it to a satisfactory extent within the national machinery.

Beginning in the early 1950's, because of the _____

Mr. LIPSCOMB. I think the committee understands the analysis of the threat and all of this.

General CARROLL. All right, sir.

THREAT ASSESSMENT

Mr. LIPSCOMB. You are starting out on a new study, and you said "that portion of the threat." Are you doing the whole thing?

General CARROLL. We are doing the threat assessment, and that will be a contribution which we make to the total project.

Mr. LIPSCOMB. But the DIA is doing this new part. This new requirement has been laid on you?

General CARROLL. That is right.

Mr. LIPSCOMB. You are doing the whole thing?

General CARROLL. We are doing the whole thing—

Mr. LIPSCOMB. And the military will use whatever you gain to crank into what they are doing?

General CARROLL. With one expansion of that, sir. Since we are projecting 20 years in the future, all will be using the same common base, and from that they can make their own excursions in their planning.

Mr. LIPSCOMB. You did not mean there are other studies going on the same as yours?

General CARROLL. That is true?

Mr. LIPSCOMB. Or that implement yours?

General CARROLL. There had been. Because of the proliferation of those, this task was assigned to us, sir.

Mr. LIPSCOMB. Then there is a document that I understand you will put in the record which shows this was assigned to you by direction of the Secretary of Defense.

General CARROLL. That is correct, sir.

Mr. LIPSCOMB. Thank you.

Mr. MINSHALL. May I ask one thing along that line.

You said threat assessment. You said that was your portion, in response to Mr. Lipscomb's query. What other portions are there to this aside from the threat assessment? Isn't your over-all assignment to determine the threat assessment, the enemy capability? Isn't that the name of the game?

General CARROLL. That is correct, sir. After a threat assessment is made, it then has to be applied to the particular planning in conjunction with which it is being used. That will be the responsibility of the military departments.

Mr. MINSHALL. I understand this, but you tell them. Is this another name for enemy capability, "threat assessment"?

General CARROLL. Yes, sir.

Mr. MINSHALL. The same thing, isn't it?

General CARROLL. Projected 20 years into the future.

Mr. MINSHALL. It is the enemy capability 20 years from now.

General CARROLL. That is right.

Mr. MINSHALL. You give this to the Joint Chiefs, and they decide what we need to counteract that threat or whatever they want to do about it?

General CARROLL. The military departments.

Mr. MINSHALL. What other portions of this defense intelligence analysis are there, other than enemy capability and the threat assessment?

General CARROLL. When I said "portion," sir, I was referring to the overall requirement of the military departments, which is to do planning.

Mr. MINSHALL. We are talking about intelligence now. You stay away from that planning business.

General CARROLL. From the standpoint of intelligence and this common-threat assessment which can be used in all areas of the Department of Defense, I do it all.

Mr. MINSHALL. That is all. That is your job. Then you turn it over to the Joint Chiefs and they can figure out what they need.

General CARROLL. That is correct.

Mr. MINSHALL. Isn't that what you have been doing all along?

General CARROLL. Not 20 years into the future, no, sir.

TWENTY-YEAR THREAT ASSESSMENT

Mr. MINSHALL. When did you get onto this 20-year kick?

General CARROLL. When the requirement was laid on us by the Joint Chiefs of Staff and the Secretary of Defense.

Mr. MINSHALL. When was it laid on, and by whom?

General CARROLL. By the Joint Chiefs of Staff and the Secretary of Defense.

Mr. MINSHALL. When?

General CARROLL. A little over a year ago. For 1969, I have been allocated by the Secretary of Defense 10 spaces to get going on this, and I am requesting 51 spaces in the fiscal year 1970 budget for this purpose.

Mr. MINSHALL. Why the magic number 20 years? Did they explain that to you?

General CARROLL. It has been determined by the military departments that their long-range planning must project 20 years into the future.

Mr. MINSHALL. Why?

General CARROLL. Because of the technological and force deployment leadtimes which are associated with the development of military force structures today.

Mr. MINSHALL. Why 20 years? Why not 10 or 5? Why didn't they go to 30 years?

General CARROLL. It is as far as 20. It will include 10 and 15 and up to 20. They decided that 20 years was as far as they could—

Mr. MINSHALL. Why does the magic number stop at 20? Why did they pick that?

General CARROLL. I assume the reason they picked that was because they felt that was the degree of leadtime that they needed.

Mr. MINSHALL. Where is this directive? Do you have it with you?

General CARROLL. No, sir; I do not.

Mr. MINSHALL. How long a document is it?

General CARROLL. First of all, it is a big study which was reviewed by the Joint Chiefs of Staff. Then there are presentations by the Joint Chiefs of Staff to the Secretary of Defense, with a paper coming back from the Secretary of Defense making the decision, approving the project.

Mr. MINSHALL. Is that paper in letter form?

General CARROLL. I believe it is in memorandum form.

Mr. WHITTEN. Earlier I asked that this information be put in the record. I think it should be. By the same token, I think it should be submitted to the committee. We do not wish to wait for the printed record to see it.

Mr. MINSHALL. Provide a copy to the committee by tomorrow.

General CARROLL. Can do.

Mr. MINSHALL. Who is your deputy now?

General CARROLL. Vice Admiral Lowrance.

Mr. MINSHALL. What happened to General Quinn?

General CARROLL. General Quinn departed DIA several years ago and became commander of the 7th Army over in Europe.

Mr. MINSHALL. Where is he now?

General CARROLL. He is retired.

CONTRACT STUDIES

Mr. ANDREWS. I want to say, Mr. Chairman, I have been on this committee a few years, and I believe this year, General, we have had more discussion about studies than I have ever heard before. I just wish we could put in the record—of course, you cannot furnish the information, but I am sure you could get it if you put your whole intelligence force to work on it—I would like to know how many studies are underway in the Pentagon and how much they will cost, studies of all types. It seems every time we ask about anything, it is either under study or going to be studied. I am sure it is very expensive.

General CARROLL. I am sure you are right, sir.

Mr. ANDREWS. How many studies do you have underway in your own shop? Can you give us a ball park figure?

General CARROLL. I have multiple numbers of studies going on in just about every organizational element of my outfit.

Mr. SIKES. Mr. Andrews, you did not have in mind that DIA should go out and contract for studies to determine how many studies there are, did you?

Mr. ANDREWS. I do not think it would shock me any more. I do not mean to be facetious, General. The record is full of these studies. Each one of them costs money. How much would you say this one will cost you? Forty-one more people?

General CARROLL. And \$700,000 for external contractual assistance.

Mr. ANDREWS. That is not a light study, I would say.

General CARROLL. No, sir, it is not. I think I should mention, however, that this does not represent a new add-on to the Department of Defense budget, because many of these things previously were done separately in various areas of the military departments. The funds that I am requesting in my budget presentation had previously been carried, even to a larger extent, in some other elements of the Department of Defense budgetary presentation.

Mr. ANDREWS. I think you will agree with me when I say the studies are very expensive.

General CARROLL. Yes, sir; they are.

Mr. ANDREWS. Thank you.

Mr. WHITTEN. General, as you pointed out in your earlier statement, last year we said it appeared to the committee that you had accumulated a lot of information of doubtful value. I think this has been sufficiently substantiated by the record for the committee to have such an opinion.

My attention was called earlier to this new assignment when we had the communications hearings, at which time we had Lt. Gen. Richard P. Klocko, Director of the Defense Communications Agency. His record showed us that in communications alone, he had about 36,500 military and civilian personnel in over 80 countries engaged in operating and maintaining defense communications systems.

We are not unaccustomed around here to having studies and reorganizations. It usually looks like they reorganize them up instead of down. The study so frequently drifts off into a study of how to perpetuate an agency and to enlarge and increase it.

TOO MUCH INFORMATION

The record last year showed that what we needed to do was consolidate, simplify, and reduce so we could get our hands on what we need when we need it. So far as I know, from the *Liberty*, *Pueblo*, and Tet offensive, we did not suffer from lack of information. We suffered from so much information and there were so many ways to get it out that it never got where it was needed in time to do any good.

You are planning more studies and setting up a new outfit. Intelligence reports laid around an average of 8 days and accumulated to the tune of 517 linear feet, and you in your statement said it really didn't make much difference. Then you want to put in the electronic equipment so you can move it faster.

The only way I see is, if it does not amount to anything, and you say it doesn't, what you want to do is just move it out of the way so investigators won't run into it any more. That is a pretty sharp statement, but that is the way it sounds.

General CARROLL. Mr. Whitten, the information reports to which you refer, I have addressed at some length in my statement. I know you have read that. The only purpose of presenting it there was to indicate that they were not time-perishable and, therefore, when backlogs did generate, there was not a loss of current information of current significance which should be called to someone's attention for planning or decision purposes. The information, however, is required. The mere fact that 8 days may elapse before it is processed to the analyst, or the fact that on occasion it may backlog before the analyst can extract from it certain data and collate and evaluate it in conjunction with other information, does not mean that that information is not valuable and should not be incorporated into our data base.

USE OF INTELLIGENCE DATA

Mr. WHITTEN. After World War II, the Navy, the Army, and the Air Force recalled some officers to write the history of ordnance during the war. One of my good friends was recalled, and was well qualified for that.

Other than writing history after the thing is over, isn't that about the only value of much of this information? You keep this information available to write the history of defense intelligence sometime in the future. Isn't that the fact?

General CARROLL. Not at all, sir. The use which is made of this data which is incorporated in the data base is to produce a multiple number of programed intelligence products which are required in support of the planners, the decisionmakers, and commanders in the Department of Defense. Much of what we do will result in a publication which is used as the basis for contingency plan development by planners in the joint staff or unified and specified commands or for the further application to operational use in the event their contingency plans are called upon for execution.

The information is not for historical purposes at all. It is to support military needs in the event military action is required.

QUALIFICATIONS FOR LONG-RANGE THREAT PROJECTION

Mr. WHITTEN. Now we come to the question: What special qualifications do you and your people have to project the world situation as it relates to this country for the next 10 or 20 years? What special qualifications do you and your group have for that task?

General CARROLL. It is a difficult task. I have asked for a total of 51 people, as I mentioned. Thirty-eight of them will be directly involved in staffing the threat projection organization within DIA. The remaining 13 will be placed in various other DIA production activities to support the threat projection elements by making inputs to them.

INTELLIGENCE CONTRACTS

Mr. WHITTEN. Let me ask the question another way, then. The Defense Intelligence Agency was set up, as I recall, after the Bay of Pigs. We had to do something, so we created a new agency. Now we are getting to where folks are beginning to look at it. It appears to me, you have Army Intelligence, Navy Intelligence, Air Force Intelligence, Central Intelligence, Defense Intelligence. Now it develops that you have a whale of a lot of contracts for intelligence. My information is that DIA has about 40 technical service contracts. Those are where you hire some company to get a certain amount of information.

Did you ever find one of them who said, "We have finished the job and we ask to be relieved of the contract" and you end it, or do you always continue the contract?

General CARROLL. We have several contracts that have been continuing over a long period of time.

Mr. WHITTEN. Let us have for the record a list of the contracts you have, who they are with, how long they have been in existence, how many have been concluded, and how many have been continued, and the dates when they were concluded and the dates when they were continued.

General CARROLL. We can do that.

Mr. MINSHALL. And what the studies accomplished.

Mr. WHITTEN. I would like, in line with that, a description of what the contract is, in such detail that we can tell what it is about.

General CARROLL. I understand.

Mr. WHITTEN. Not just "find out what is going on" sort of studies.
(The information follows:)

EXTERNAL ASSISTANCE CONTRACTUAL SUPPORT

External assistance contracts entered into by DIA, covering both agreements with other Government agencies and contracts with commercial firms follow.

INTELLIGENCE PRODUCTION

Contract title/purpose: Open source exploitation.

Contractor: Library of Congress—Defense Research Division.

Fiscal year:

1963	-----	\$2, 225, 000
1964	-----	2, 465, 000
1965	-----	2, 872, 000
1966	-----	2, 749, 000
1967	-----	2, 819, 000
1968	-----	2, 888, 000
1969	-----	3, 346, 000

Description.—DIA continued the agreement originally established in 1948 between the U.S. Air Force and the Library of Congress, establishing an organization within the Library of Congress to exploit for intelligence use the extensive collections of unclassified, open source material. The Library of Congress has the largest collection of Slavic material outside of the U.S.S.R. and the third largest collection of Chinese documents, with only China and the Soviet Union possessing larger collections. In addition, extensive collections have been developed on Latin America, Africa, and the remainder of the free world. DIA uses the Defense Research Division (DRD) of the Library of Congress not only to exploit these collections in support of its intelligence programs, but to research all appropriate collection requirements to determine whether information is available in the open source prior to requesting technical or other more expensive collection resources. This is a continuing requirement.

Accomplishments.—The contributions of the Defense Research Division can be classified into three groups:

1. **Extracts:** DRD produces approximately 20,000 extracts from foreign language publications for DIA per year. The DRD analysts are provided guidance from DIA as to subjects and recommended sources to exploit. These extracts are used by the DIA analysts in their intelligence production.
2. **Automated installation file:** DRD prepares and submits over 50,000 inputs annually to the DIA automated installation file (AIF). DRD supports DIA in those subjects and in those areas where the open sources are most productive.
3. **Studies:** DRD produces over 200 special studies or inputs to DIA studies annually, on a variety of topics of intelligence interest based on exploitation of the open source and used in conjunction with classified material provided by DIA analysts. These studies have included, among many others:

African Paramilitary Studies.
Chinese Communist Foreign Aid: Motivations and Constraints.
Floods: Indo-Chinese Peninsula.
Military Control, Communist China.
Boundary and Housing Data on U.S.S.R. Cities.
Soviet Military Doctrine.
Viet Minh Logistics.
Demographic Reviews of North Korea, U.S.S.R., and North Vietnam.
Peoples Liberation Army Rank Structure.
Government Control Force Estimates for Soviet Block Satellites.
Chinese Communist and Conflict Negotiations.
Meteorology—Communist China and Mongolia.
East German Ground Forces Logistics.
Public Image of Military in Latin America.
Administrative Studies on Selected Countries of Africa.

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Contract title: Geological Survey Exploitation.
Contractor: Department of Interior.

Fiscal year:

1963	-----	\$1,400,000
1964	-----	1,400,000
1965	-----	1,610,000
1966	-----	500,000
1967	-----	115,000
1968	-----	124,000
1969	-----	138,000

Description.—In fiscal year 1963 the Defense Intelligence Agency inherited the Military Geology Branch (MGB), Department of Interior, support from the U.S. Army at an annual cost of \$1.4 million involving approximately 118 man-years. This one agreement included support from the World Soils Geography Unit at the Department of Agriculture (see Department of Agriculture) and Geology Branch at the Department of Interior. This agreement was for support in specialized geologic research and terrain studies production. Beginning in fiscal year 1966 separate agreements were negotiated with the Department of Agriculture for \$195,000 and approximately 14 man-years of effort and with the Department of Interior for \$500,000 and approximately 22 man-years of effort. The Department of Interior agreement was further reduced in fiscal year 1967 to \$115,000 and approximately 5 man-years. As a result of the reductions over the 2-year period in the Department of Interior agreement, the work previously performed by Interior, but not discontinued, was taken in-house by DIA utilizing 44 spaces for this purpose. This is a continuing requirement.

Accomplishments.—The Department of Interior contract currently provides the following type of analyses:

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Contract title: Exploitation Soil Conservation.
Contractor: Department of Agriculture.

Fiscal year:

1966	-----	\$195,000
1967	-----	213,000
1968	-----	221,000
1969	-----	234,000

Description.—This support was originally part of one agreement with the Department of Interior (see Interior contract) for \$1.4 million in fiscal year 1963; and continued as part of the Interior Agreement until fiscal year 1966 when a separate agreement was negotiated with the Department of Agriculture World Soils Geography Unit. This agreement was originally requested by the U.S. Army to obtain the services of the soil scientists of the Department of Agriculture required for the development of terrain intelligence on foreign countries. These terrain studies include soil analysis to assess the degree of cross-country movement permitted, capability of an area to support military construction and suitability for defense positions. This is a continuing requirement.

Accomplishments.—The World Soils Geographic Unite (WSGU), Soil Conservation Service is tasked annually to prepare the soil inputs for three groups of DIA studies:

1. Strategic Terrain Studies—used by United States and NATO Forces.
2. Tactical Terrain Analysis Studies—studies on key areas where U.S. Forces may be required in support of command contingency plans.
3. National Intelligence Studies on Terrain—prepared for area background and military planning throughout the Department of Defense.

WSGU is tasked annually for the preparation of inputs to approximately two strategic terrain studies, six national intelligence surveys, and 12 tactical terrain analysis. In addition, WSGU provides technical expertise in support of other special DIA studies, such as soil studies in the areas of Soviet-hardened missile site deployment.

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Contract title/purpose: Photo processing, motion picture film.
Contractor: Department of Agriculture.

Fiscal year:

1966	-----	\$5,000
1967	-----	1,000
1968	-----	1,000
1969	-----	1,000

Description.—To process black and white motion picture film including film duplicating services that cannot be accomplished within DIA photographic laboratory capabilities.

Accomplishments.—This contractual support for motion picture film processing has enabled DIA to fulfill its mission to support the Joint Chiefs of Staffs, Department of Defense mapping and charting activities, and the intelligence community with photographic reproduction services. The comparatively low volume of requirements for processing of this type does not justify the high cost that would be incurred to purchase the specialized equipment required to develop and maintain an in-house capability.

Contract title/purpose: Photo processing, color film.

Contractor:

(Fiscal year 1966) Blair Inc., Bailey's Cross Roads, Va. (Fiscal years 1967-69) Blair Inc., Bailey's Cross Roads, Va.; Capital Film Laboratories, Washington, D.C.

Fiscal year:

1966	-----	\$5,000
1967	-----	7,000
1968	-----	7,000
1969	-----	7,000

Description.—To process color still and color motion picture photography, including duplication services that could not be accomplished within DIA photographic laboratory capabilities. In fiscal year 1967, the single contract with Blair Inc. was dropped and open purchase system instituted to enable DIA to utilize other commercial sources to better provide required services within established time frames. Under present arrangements Blair, Inc., is used for processing of color still photography and Capital Film Laboratories provides processing and duplication of color motion picture film.

Accomplishments.—This contractual support enables DIA to fulfill requirements of the Joint Chiefs of Staff, Department of Defense mapping and charting activities, and the intelligence community with photographic reproduction services. Although recently acquired equipment provides DIA with still color film processing capability, contractual support is required for motion picture film and for processing of specific franchise still color photography (Kodachrome). The comparatively low volume of requirements does not justify the high cost that would be incurred to provide this total in-house capability.

* * * * *
Contract title/purpose: Indexing of aerial photography.

Contractor:

(Fiscal year 1965-68) Universal Engineering, Inc.

(Fiscal year 1969) Potomac Aerial Surveys, Inc.

Fiscal year:

1965	-----	\$15,000
1966	-----	7,000
1967	-----	50,000
1968	-----	33,000
1969	-----	33,000

Description.—The contract provides for indexing of critical aerial photography by precise geographical location to facilitate storage and retrieval through automated index listings to support the photographic research requirements of DIA, the unified and specified commands, military departments, and other authorized users. Contractor assistance is utilized when the quantity of aerial photography received by DIA exceeds the in-house indexing capability.

Accomplishments.—The approximate number of aerial exposures indexed by the contractor in each fiscal year is as follows:

Fiscal year 1965	-----	158,000
Fiscal year 1966	-----	75,000
Fiscal year 1967	-----	305,000
Fiscal year 1968	-----	295,000
Fiscal year 1969	-----	¹ 225,000

¹ Estimated.

* * * * *
Contract title/purpose: Meteorological data.

Contractor: National Weather Records Center—Department of Commerce.

Fiscal year :

1965	-----	\$34, 000
1966	-----	47, 000
1967	-----	88, 000
1968	-----	126, 000
1969	-----	84, 000

Description.—When the Defense Intelligence Agency was formed, the meteorological intelligence functions transferred from the military services included only the jobs directly involved in production and the manpower spaces necessary to perform them. The production of each NIS section on weather and climate requires the machine processing of several million weather observations into statistical summaries suitable for human analysis. The national archives for climatological data are maintained by ESSA at the National Weather Records Center (NWRC), Asheville, N.C. Automated Data Processing of climatological data in support of the NIS productions has always been performed by NWRC. The policy was continued when DIA was formed as the most economical means of acquiring the required support. This is a continuing requirement.

Accomplishments

1. Ocean area NIS action I support: Support required is irregular, recurring once every 3 to 4 years as production shifts to a new ocean basin. Support involves both programing and processing, the cost varying from approximately \$75,000 to \$150,000 depending on the volume of records available for processing. A 2-year leadtime on NWRC contracts is required to allow completion of analyses for preparation of the first scheduled production in the series. Support is received in the form of statistical summaries of meteorological parameters and a magnetic tape of wind data for use in the machine production of wind roses by DIAMS.

2. Amphibious objective study support: Support is required on an annual basis varying in amount accordings to the number of productions scheduled. Contract covers programing and processing costs. Support is in the form of machine summaries of climatological data for selected stations in and adjacent to the AOS area.

3. Upper air atlas: In 1964 the format of the ocean area NIS section I was revised to delete upper air information subject to the preparation and publication of a series of upper air atlases prepared on a hemisphere (rather than sectional basis. Support furnished by ESSA has been in two forms: A detailed survey and evaluation of the materials (raw data and published studies) available for use in preparation of the proposed series, and actual production of a set of documents covering the southern hemisphere. The decision on the production was made in 1968 to take advantage of extensive collection and analysis work which had already been done under Government contracts by a group of scientists working on a joint ESSA-NCAR (National Committee for Atmospheric Research) project. This action will permit publication of the southern hemisphere series several years sooner than could have been achieved with DIA internal production and at a savings of several hundred thousand dollars.

4. Climatological data collections: The major portion of the national climatological data base is acquired by processing and storing data routinely received on long-haul circuits in support of operational meteorological requirements ———.

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Contract title/purpose: Physical vulnerability studies.

Contractor: Various as indicated by project accomplishments.

Fiscal year :

1963	-----	\$111, 000
1964	-----	218, 000
1965	-----	0
1966	-----	235, 000
1967	-----	150, 000
1968	-----	155, 000
1969	-----	189, 000

Description

1. These contracts have been used to extend and augment "in-house" capabilities in the functional area of physical vulnerability of targets to various weapons with kill mechanisms including fragmentation and nuclear effects.

2. Over this period, work performed has included:

(a) Developing methodology for solving targeting problems involving hardened installations.

(b) Developing predictive models for personnel casualties exposed to combined nuclear effects.

(c) Determining hardness levels of various type bridges.

(d) Production of circular slide rules permitting rapid solution of typical weapon effects and weapons applications problems.

(e) Preparation of mathematical models and computer codes for special weapon delivery system applications.

(f) Solving unique target problems (radars, etc.).

(g) Performing research (DAMS, SLABS, NEACP) studies, laboratory investigations, and field work to extend the state-of-the-art in certain areas to obtain data and procedures necessary to solve special problems of targeting interest.

3. These projects are a portion of an overall program which is viable and aimed at providing a capability to respond to assigned responsibilities in a more rapid, accurate, precise manner.

4. The work performed under these contracts requires equipment, facilities, knowledge, data, expertise, and disciplines not available to the organization.

5. Efforts are made to fully coordinate with other interested agencies to insure economy, combine objectives, and to best utilize resources.

Accomplishments

A. FISCAL YEAR 1963

Project: Vulnerability Handbook of Hardened Installations. Contractor: Newmark, Hansen & Associates, Urbana, Ill. Amount: \$17,000.

Summary.—The vulnerability of hardened installations is critical for target planning. Initial methodologies for calculating this vulnerability required updating due to increased knowledge derived from testing and analytical work. This contract was to update DIA manuals utilized in computing the vulnerability analysis of hardened installations.

Benefits.—This contract provided a better, more complete, manual for the calculation of vulnerabilities of hardened installations. Incorporation of advanced analytical theories and test data has improved our analyses and the analyses of users of the DIA manual.

Project: vulnerability of bridges. Contractor: General American Transport Co., Chicago, Ill. Amount: \$36,000.

Summary.—This contract was for the development of a methodology for the prediction of vulnerability of four types of bridges to the effects of nuclear weapons. The types of bridges studied were steel arch, opened spandrel reinforced concrete arch, solid concrete and/or masonry arch, and suspension bridges. The study was continued under the provisions of an Air Force fiscal year 1963 contract when function was assigned to DIA.

Benefits.—Based on the findings of this study "Vulnerability Numbers" (VN) for the various type of bridges were determined and assigned to the appropriate targets listed in the target data inventories (TDI). Note: This support was initiated by the U.S. Air Force in fiscal year 1962 at \$73,004 and was extended by DIA into fiscal year 1963 at \$36,000. The benefits described above pertain to the completed contract.

Project: Combined effects. Contractor: E. H. Smith, Washington, D.C. Amount: \$58,000.

Summary.—The vulnerability of personnel in various environments is critical for target planning. Prediction of personnel casualties and fatalities in urban-industrial areas had been made solely on the basis of analyses of the World War II experiences at Hiroshima and Nagasaki. This contract was to bring together the data developed in two previous contracts, one on the phenomenology of nuclear weapons and the other on environmental factors as pertinent to effects on personnel, to provide the means of predicting casualties and fatalities among personnel in various environments.

Benefits.—This contract provided a better, more complete basis for calculation of personnel casualties and fatalities in various environments, from the combined effects of nuclear weapons ranging in yield from fractional kilotons to multimegatons. The data derived from this contract has been published in PC 550/1-2 Physical Vulnerability Handbook—Nuclear Weapons, for use by the U. & S. Commands and other DOD agencies in the prediction of casualties and fatalities in the strategic intelligence operations plan, war gaming, etc. Vulnerability Numbers derived from the results of the contract study are entered in the Eurasian target data inventory for the users of that document.

Project: Shock analysis. **Contractor:** Newmark, Hansen & Associates, Urbana, Ill. **Amount:** \$30,000.

Summary.—As a result of the hardening of critical facilities by placing them underground, new methodologies were required in order to evaluate vulnerabilities. This contract developed methodologies to predict damage to missile systems, antennas, electronic equipment, computers, and communications equipment which were shock mounted in hardened sites.

Benefits.—Prior to the development of these methodologies for shock analysis, vulnerability analysis of hardened underground targets was based on the hardness of the structure and did not consider the shock effects on the equipment. As a result of this contract, vulnerability analysis of hardened targets has been significantly improved. These methodologies have been adopted widely and are currently used by the U.S. Air Force elements planning and testing U.S. missile vulnerabilities.

Project: Vulnerability of bridges. **Contractor:** Newmark, Hansen & Associates, Urbana, Ill. **Amount:** \$40,000.

Summary.—This contract developed generalized, but easily applied, methods for evaluating the vulnerability of various types of bridges to the effects of nuclear blast. Bridge types studied included simply supported steel highway and railroad girder, truss, and tied arch bridges.

Benefits.—As the result of this contract, this agency produced a document for the guidance of planners which permits ready, easy determination of the vulnerability of these type targets for normal ranges of sizes. In addition, the data was utilized to provide vulnerability numbers (an index system) for specific targets included in the various TDI's (target data inventories).

Project: Salvo kill probabilities. **Contractor:** Republic Aircraft, N.Y. **Amount:** \$10,000.

Summary.—The purpose of this research project was to develop a computer program that would predict the effectiveness of a salvo release of munitions against personnel and materiel targets. This computer program calculates the probability of damage of a salvo of rockets, gunfire, or cluster bombs.

Benefits.—This computer program was used in the effectiveness calculations for the Joint Munitions Effectiveness Manual for Air to Surface munitions. This manual is used by weapons planners for calculating force requirements.

Project: Computer solutions to fragmentation. **Contractor:** U.S. Army Arsenal, Picatinny, N.J. **Amount:** \$50,000.

Summary.—This contract was for weapons effectiveness calculations of non-nuclear munitions. MAE's (Mean Areas of Effectiveness) were calculated for general purpose bombs, rockets, gunfire and fragmentation munitions against a large spectrum of personnel and materiel targets. This project covered MAE's for WWII general purpose bombs, missiles and rockets, and MAE's for additional munitions being used in Vietnam.

Benefits.—These weapons effectiveness computations measure the relative effectiveness of various munitions and are used in weapons employment manuals by targeting officers for calculation of force requirements.

Project: Nuclear computers. **Contractor:** General American Transportation Co., Chicago, Ill. **Amount:** \$39,000.

Summary.—This contract was for the revision and production of 1,700 sets of plastic, circular slide rules (PVC 9 and 10) and production of 350 sets of PVC-8 circular slide rules. These hand computers are used for the rapid solution of nuclear weapons problems.

Benefits.—These computer kits have been provided to organizations and elements of the DOD who are engaged in nuclear weapon employment planning. These computers simplify and speed the solution of weapon employment problems.

Project: Nonnuclear hand computers. **Contractor:** General American Transportation Co., Chicago, Ill. **Amount:** \$49,000.

Summary.—This contract was for the development and production of seven hundred (700) sets of plastic, circular/slide rules for rapid solution of non-nuclear weapons problems.

Benefits.—These computer kits have been provided to organizations and elements of the DOD who are engaged in target planning. These computers simplify and speed the solution, by unskilled personnel, of typical weapon application problems.

C. FISCAL YEAR 1966

Project: Analysis of radars. Contractor: General Electric. Amount: \$97,000.

Summary.—This project investigated the vulnerability of selected RED (Hostile) and BLUE (Friendly) radar antennas to nuclear blast effects. The radars were selected to be representative, by size, function, type, and deployment.

Benefits.—The data produced has been utilized in handbooks published by this Agency for those elements in the DOD engaged in targeting or weapons employment planning. The data has also been employed in recent studies concerning major communications systems employed by the Soviets.

Project: Computerizing vulnerability analysis system. Contractor: Newmark, Hansen & Associates, Urbana, Ill. Amount: \$138,000.

Summary.—This project was designed to automate and improve existing manual systems of computing the vulnerability of hardened targets.

Benefits.—This computer system (VAS), when fully operational, will be a basic analytical tool utilized for solving many problems in a rapid efficient manner. Portions of the VAS system have been utilized in determining the hardness levels of buried, reinforced concrete communications vaults and are currently being utilized in connection with a study concerning the hardness of Soviet ICBM missile launch facilities. By conversion, addition, and improvement other analytical methods will be adopted to the VAS framework to form a comprehensive, viable system geared to provide speed, accuracy, and flexibility to resolve targeting problems involving complex elements and conditions.

D. FISCAL YEARS 1967-69

Project: Analysis of large, concrete dams. Contractor: U.S. Army Waterways Experiment Station, Vicksburg, Miss. Amount: Fiscal year 1967, \$50,000; fiscal year 1968, \$62,000; fiscal year 1969, \$50,000.

Summary.—This project was initiated as a joint effort with DASA (Defense Atomic Support Agency) in fiscal year 1967. The objective is to determine the behavior, mode of failure, and extent of breach of large hydraulic structures experiencing shock loading from nuclear weapons burst in or on the upstream reservoir. This is a very complex problem combining theoretical investigations, laboratory scale model tests, development of computer predictive codes, and finally full-scale catastrophic test of a prototype dam.

Benefits.—The work to date has summarized all known work; developed parametric data on the water shock environment; derived test results on shock propagation and stress intensity for various test conditions on scale models; and investigated adaptation of existing computer codes using finite element analysis for prediction purposes. Remaining work consists of further model tests, code development, and destructive testing of a large dam (concrete arch, 600 feet long by 150 feet deep) recently made available in California. The data developed has not been employed on any specific targeting problem as yet. When completed, it should provide a capability to conduct a rapid analysis of a target system composed of large hydraulic structures which are located upstream of other critical facilities. This type study capitalized on the secondary effects of downstream damage and could effect economies in maximizing weapons employment.

Project: Deep reinforced concrete slabs. Contractor: U.S. Army Waterways Experiment Station, Vicksburg, Miss. Amount: Fiscal year 1967, \$100,000; fiscal year 1968, \$93,000; fiscal year 1969, \$30,000.

Project: Analysis of the effects of electromagnetic pulse on a selected aircraft. Contractor: U.S. Army Equipment Research and Development Center, Fort Belvoir, Va. Amount: Fiscal year 1969, \$50,000.

Project: Physical vulnerability computers. Contractor: Not yet awarded. Amount: Fiscal year 1969, \$14,000.

Summary.—To update nuclear hand computers and provide additional material to meet demands levied by the military departments.

Project: Application in blast and shock phenomena in ground effect of low yield weapons. Contractor: Not yet awarded. Amount: Fiscal year 1969, \$45,000.

* * * * *
Contract title/purpose: Foreign language translation.
Contractor: Various, see data below.

Contractor	Fiscal year	Amount
Translations Consultants, Ltd.....	1965	\$21,000
Do.....	1966	100,000
Scripta Technica.....		11,000
Total.....		111,000
Translations Consultants, Ltd.....	1967	40,000
International Information Institute.....		105,000
Total.....		145,000
Institute of Modern Languages.....	1968	89,000
Translations Consultants, Ltd.....		40,000
Frank Farnham Co.....		11,000
Total.....		140,000
McGregor & Werner.....	1969	80,000
Translation Consultants, Ltd.....		10,000
Institute of Modern Languages.....		10,000
Total.....		100,000

Description.—Much of the textural material used in DIA originates outside the United States and is not available in English. Translations are required to analyze and evaluate this foreign language information. In fiscal year 1965 when informal translation agreements, primarily with Army Map Service, could no longer support DIA's requirements, the first commercial contract was awarded. During fiscal year 1969 a translation services branch was established in the production center. The current in-house capability now covers 12 languages. The current contract provides on-call service in languages not translated in-house or in quantities beyond the capability of the DIA staff. This is a continuing requirement, contractor (s) are lowest acceptable bidder.

Accomplishments.—The translation of foreign language publications permits production center analyst, JCS, and others to exploit and analyze foreign language materials for intelligence.

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Contract title/purpose: Special cartographic support.
Contractor: U.S. Naval Oceanographic Office.

Fiscal year:	Amount
1968	\$35,000
1969	42,000

Description.—Specialized support required in cartographic preparation of tactical commanders' terrain analysis (TacTA). This support includes the preparation of dry strips, paneled positives, name overlays suitable for preparation of lithographic printing plans. Support also includes the combination rub-on color proofs or color separation media. This 2-year effort is proposed to terminate in fiscal year 1969.

Accomplishments.—Approximately five TacTA's were produced in fiscal year 1968 and 10 are to be produced in fiscal year 1969.

* * * * *
Contract title/purpose: Cartographic technical support.
Contractor: U.S. Army Map Service.

Fiscal year:	Amount
1965	\$302,000
1966	30,000
1967	30,000
1968	40,000
1969	40,000

Description.—This agreement provides for geodetic computations in support of controlled lease maps; production of photo mosaics as required for intelligence

analysis and studies; and specialize cartographic technical supplies which are not available in normal supply channels, for example, scribing materials and instruments, topographic symbols and special inks. Additionally, prior to fiscal year 1966, the Army Map Service also provided translation services to DIA. This is a continuing requirement.

Accomplishments.—The effort provided by Army Map Service supported all divisions of the DIA Intelligence Production Directorate requiring geodetic, mosaic, and special graphic support beyond DIA in-house capabilities. These products are used in the National Intelligence Survey (NIS), Tactical Commanders' Terrain Analysis (TacTA), and Line of Communications Studies.

* * * * *
Contract title/purpose: Weapons costing.
Contractor: Various, see data below.

Fiscal year	Contractors	Amount
1965.....	RCA.....	\$8,000
	U.S. Army Springfield Armory.....	7,000
	U.S. Tank and Automotive Center.....	5,000
	Total.....	20,000

Description.—This study met requirements for specifying the costs of manufacture, step by step with a labor materials breakout, of certain identified items of electronic equipments, largely radars, small arms, and self-propelled vehicles.

Accomplishments.—This study developed data on unit costs of equipment from which, for example, the costs of equipping and fielding of a Soviet Army division were extrapolated.

* * * * *
Contract title/purpose: Missile systems costing.
Contractor: Martin-Marietta.

Fiscal year 1963..... \$14,000

Description.—This contract was to develop techniques for estimating the costs of production of foreign missile systems.

Accomplishments.—This contract indicated that available data did not permit a sufficiently precise analysis of the production costs of foreign missile systems. A follow-on (\$267,000) contract proposed by Martin-Marietta was rejected by DIA on this basis.

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Contract title/purpose: Press service.
Contractors:

New York Times.
Associated Press News Service.
United Press International News Service.
Reuters News Service (Western Union).
Foreign Broadcast Information Service.

Fiscal year:	Amount
1965.....	\$16,000
1966.....	16,000
1967.....	16,000
1968.....	15,000
1969.....	15,000

Description.—These press services and the Foreign Broadcast Information Service provide current indications of military, political, economic, and sociological happenings throughout the world. The AP/UPI in tandem complement each other; Reuters reflects the local output from 13 centers located throughout the world.

Accomplishments.—These materials are rough edited as received and sorted by geographic area for distribution three times a day. They alert analysts to significant developments to insure timely consideration in the intelligence analytical processes, and supply open source background data and continuous cross-check of information received from other sources.

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Contract title/purpose: Targeting information.
Contractor: Georgetown University.

Fiscal year 1963..... \$375,000

Description.—The contract, which provided targeting information on selected areas of transportation; for example, information which would pinpoint the geographic location of rail traffic control installation, was first negotiated by the Assistant Chief of Staff, U.S. Air Force and transferred to DIA upon activation of the Intelligence Production Directorate in 1962. The external effort was cancelled after fiscal year 1963 and converted to an in-house function as DIA became operational.

Accomplishments.—Material provided under the contract was used to prepare and update then existing targeting information folders.

Contract title/purpose: Signal intelligence general—SIGMA.

Contractor: _____.

Fiscal year:

1963	-----	\$300,000
1964	-----	300,000
1965	-----	300,000
1966	-----	300,000
1967	-----	300,000
1968	-----	300,000
1969	-----	300,000

Description.—This contract provides for maintenance of worldwide data on foreign communications and electronics by acquisition—of unclassified data and the exploitation of this data in combination with classified data provided by DIA into finished studies and analyses—.

INTELLIGENCE MANAGEMENT AND SUPPORT

Contract title/purpose: Secure packaging.

Contractor: Syracuse University Research Corp. (SURC).

Fiscal year 1968----- \$20,000

Description.—This was a one-time project, requiring a total of 5 man-months during fiscal year 1968. The project report was completed on June 14, 1968. The contract was for an initial phase investigation of the most efficient, economical, and reliable techniques for packaging materials with a precisely measured degree of traceability of any surreptitious entry into a securely prepared package. The study was initiated at the recommendation of a U.S. intelligence board ad hoc group.

Accomplishments.—The study covered scientific and practicable aspects of the problem and resulted in a recommendation that a combination of techniques be simultaneously employed in a single mechanism developed for the purpose of packaging materials needing a high degree of protection. The recommendations are now under consideration within the Department of Defense for follow-on perfection of a single machine integrating the various techniques, installation of the system in a designated packaging facility on a pilot basis, and training of personnel in its use.

MAPPING, CHARTING, AND GEODESY (M.C. & G.)

Contract title/purpose: Feasibility study of airborne gravity.

Contractor: Bell Aerosystems.

Fiscal year 1966----- \$15,000

Description.—A study to determine the feasibility of configuration an airborne gravity subsystem by modifying the AN/USQ-28 mapping and survey system, in the RC-135A aircraft.

Accomplishments.—A final report was written by the contractor and accepted in November 1966. Using the potential accuracies that the RC-135A/USQ-28 could obtain, a high-altitude gravity system was defined that could obtain gravity over land with a RMS error of 7.4 milligals and over ocean of 7 milligals for a 12 hour mission.

* * * * *

Contract title/purpose: Airborne geomagnetic survey.

Contractor: Fairchild Hiller.

Fiscal year 1966----- \$45,000

Description.—This study was divided into 2 phases. Phase I was an investigation of the present system in the NO121K and C54 aircraft. The objective was to improve the current operational efficiency of the airborne geomagnetic

survey system. Phase II was to provide definition of a new system configuration for magnetic surveying utilizing a new Navy aircraft.

Accomplishments.—The contractor prepared reports dated February 10, 1968, on phase I and April 15, 1968, on phase II which were accepted. The results of the phase I study were used to update the existing aircraft by the procurement and installation of Astro-tracker and Loran A/C systems to provide a more efficient worldwide positioning system. The results of the Phase II study are now being worked into a statement of work for the procurement of the advanced magnetic survey system to be installed in the P3A aircraft.

* * * * *
Contract title/purpose: Mapping, charting, and geodesy (M.C. & G.) program.
management system analysis, phase I.

Contractor: Planning Research Corp.

Fiscal year 1966----- \$45,000

Description.—Provided technical assistance to M. C. & G. Automated Data Processing (ADP) working group in defining objectives for a DOD M.C. & G. data processing and reduction system. Identify possible problem areas in the production agency intelligence data handling systems program which will require action. Provide DIA with statement of characteristics of a R. & D. management information system (MIS).

* * * * *
Accomplishments.—PRO Report R-874, October 3, 1966. Analyzed all M.C. & G. data exchange files (Air Force, Navy and Army) resulting in recommendation for a standard coding (formatted data elements) cartographic products. Recommended a suitable weighing to permit ranking of area requirements (U. & S. Commands) in priority order. Provided concept for a research and development MIS in addition to a DIA M.C. & G. MIS.

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Contract title/purpose: M.C. & G. program management system analysis, phase II.

Contractor: Planning Research Corp.

Fiscal year 1967----- \$30,000

Description.—Analyze all M.C. & G. data files; identify and define M.C. & G. data elements, data chains; and recommend data codes. Prepare draft addendum to existing DIA Manual. Develop (test and evaluate) suitable weighting system for implementation by unified and specified commands and military departments that will permit ranking the area requirements for mapping, charting and geodesy products in priority order:

List and evaluate the recommended weighting system (code and sample Joint Strategic Operational Plan (JSOP) submission from commands).

Evaluate JSOP printing categories.

Defined automated data processing application for integrated area requirements.

Accomplishments.—Contract completed in November 1967. A proposed M.C. & G. area requirements file was developed. File content, and evaluation of the weighting system, outline of format and item description of the file were provided. Determination was made of subject headings required by DOD M.C. & G. community for inclusion in intelligence subject code (ISC). A composite listing of subject headings was compiled. An analysis and requirements for geopolitical coding requirements of DOD M.C. & G. community were accomplished with compilation of a geopolitical listing proposed for standardization within the M.C. & G. community. A plan and description of tasks involved in the creation of the M.C. & G. area requirement file, the suggested method to accomplish tasks, and the estimation of effort required to accomplish the task were furnished. DIA is in the process of applying the study conclusions in the establishment of a system of ADP support to M.C. & G. management.

* * * * *
Contract title/purpose: Glossary of M.C. & G. terms.

Contractor: Itek Corp.

Fiscal year 1967----- \$37,000

Description.—The contract provided a glossary of M.C. & G. terms with acceptable definitions to the community. The report was turned over to the General Printing Office for printing and the Army Map Service for maintenance.

Accomplishments.—Glossary is currently in widespread use throughout the M.C. & G. community as the DOD standard for terminology.

* * * * *
 Contract title/purpose: Lunar mapping program.
 Contractor: Raytheon/Autometrics.

Fiscal year 1967----- \$14,000

Description.—The contracted study determined the M.C. & G. products which can be produced for NASA to meet their needs for extraterrestrial map and chart products.

Accomplishments.—Final report was accepted on February 19, 1968. Project products have been identified and programed.

* * * * *
 Contract title/purpose: Photogrammetric equipment standards.
 Contractor: National Bureau of Standards.

Fiscal year 1967----- \$10,000

Description.—In 1967, DIA established a requirement to initiate a study to develop standards or diagnostic procedures for testing and determining the accuracy of electro/optical photogrammetric systems. This contract was negotiated with the National Bureau of Standards (NBS) to carry out phase I of the effort—the preparation of proposed test methods, standards and test materials.

Accomplishments.—The phase I report, NBS Report 9560, was completed in June 1967. NBS proposed a laboratory test program including resolution test and use of precision grid plates to determine the upper limit of performance of automatic photogrammetric plotting equipment. The phase I report was provided to the USAF Rome Air Development Center and USA Engineer Topographic Laboratory for review and evaluation. It was concluded by DIA, as a result of the phase I evaluation, that the continuing effort to develop test procedures and test materials could be made a part of the exploratory development programs of the military departments. Subsequent to this contract effort, precision grid plate as well as mathematical performance models of the advanced photogrammetric systems have been developed by the military departments.

* * * * *
 Contract title/purpose: Hydrographic survey system analysis.
 Contractor: National Bureau of Standards (NBS).

Fiscal year 1967----- \$50,000

Description.—The NBS study examined the hydrographic survey methods in use within Navy, established a cost effectiveness model for evaluating hydrographic survey systems and made recommendations on improvements to current techniques, promising areas for research and development and more cost effective replacements for current systems.

Accomplishments.—Report accepted April 14, 1967. As a result of the NBS study, a number of precedential changes were made by the U.S. Naval Oceanographic Office in the operation of hydrographic surveys. The NBS study also provided basic data for initiation of an R. & D. program for development of a more efficient hydrographic survey system and for a new design for coastal survey ships.

* * * * *
 Contract title/purpose: M. C. & G. research, development, test, and evaluation information system.
 Contractor: Data Corp.

Fiscal year 1967----- \$30,000

Description.—To develop a M.C. & G. R.D.T. & E. information system, short title: Mapping Central, within the Department of Defense. This will be a data storage, retrieval, and dissemination system for handling research, development, test, evaluation and related technological information in fields of mapping charting and geodesy. This system will provide a capability for rapidly and effectively collecting and extending this much needed information throughout the mapping, charting and geodesy community. Organizations affected include: Defense Documentation Center; Department of Commerce Clearinghouse of Scientific and Technical Information; Library of Congress; DOD mapping, charting, and geodesy organizations; Army, Navy, and Air Force research and development organizations; Mapping Charting, and Geodesy Coordinating Committee; Industry; et cetera.

Accomplishments.—The initial contract effort structured a sample data base and identified preliminary system characteristics and requirements. The contractor proposed utilization of a computer program and an ADP system configuration similar to that previously developed for the USAF Recon Central. DIA did not elect to proceed with the system development as proposed by the contractor. The preliminary report provided a valuable base for continued in-house examination of additional, essential elements prior to further system definition.

Contract title/purpose: Cartographic Equipment Handbook.
Contractor: Data Corp.

Fiscal year:

1967	-----	\$20,000
1969	-----	3,000

Description.—To prepare a compendium of cartographic instrumentation, with evaluation and description of their functions.

Accomplishments.—Two hundred and twenty-five copies of the handbook were produced under the fiscal year 1967 contract and an additional printing of 200 was made in fiscal year 1969. The handbooks have been distributed to recognized users of this information and maintenance is being provided by U.S. Army Topographic Command.

Contract title/purpose: M. C. & G. program management system analysis, phase III.

Contractor: Planning Research Corp.

Fiscal year 1968----- \$45,000

Description.—Create and implement an area requirement file to support M. C. & G. management needs in accordance with plan proposed under fiscal year 1967 contract.

Accomplishments.—As of April 1969, the contract is approximately 96 percent complete. Due to a lesser number of actual area requirement cards to be converted than initially anticipated, an engineering change is being negotiated to permit inclusion of programmed products data and/or corner coordinate data into the file.

Contract title/purpose: M. C. & G. product distribution system analysis.
Contractor: Systems Technology Associates.

Fiscal year 1968----- \$40,000

Description.—To evaluate current procedures used by the military departments in the distribution of M. C. & G. products in anticipation of using operations research and modeling techniques to determine optimum future distribution system.

Accomplishment.—Final report was submitted to DIA on October 31, 1968, and has been accepted. The final report is currently being used in related map and chart distribution system evaluation and planning.

Contract title/purpose: Prototype orthophotomap.

Contractor: U.S. Geological Survey, Department of the Interior.

Fiscal year 1968----- \$14,000

Description.—Overall project objective was to produce eight orthophotomaps of Southeast Asia in which distortions are minimized and test them in actual field conditions. Specific purpose of the contract was to have orthophotos for the eight orthophotomaps compiled by the U.S. Geological Survey.

Accomplishment.—Orthophotos for eight orthophotomaps were satisfactorily completed by the U.S. Geological Survey.

Contract title/purpose: M.C. & G. program management system analysis.
Contractor: Not determined—lowest acceptable bidder.

Fiscal year 1969----- \$40,000

Description.—This contract requires a one-time preparation of a series of standardized indexes designed for use with digital plotters as well as a manual mode. At present some 200 different indexes exist for which the preparation of computer programs and plotter input is impractical. These standardized indexes

will greatly facilitate the exchange of M.C. & G. data between departments, commands and DIA. Future use includes DOD map and chart catalogs and DOD libraries.

Accomplishment.—Contract under negotiation.

* * * * *
Contract title/purpose: Technical assistance to R.D.T. & E. coordinating committee.

Contractor: Not determined—lowest acceptable bidder.

Fiscal year 1969 ----- \$36,000

Description.—DIA and Director, Defense Research & Engineering (D.D.R. & E.) have formed an M.C. & G. R.D.T. & E. Coordinating Committee which will assist DIA in generating information for validating R. & D. requirement, for evaluation of alternatives, for doing cost/effectiveness, and other management studies. The charter of the committee requires the use of scientists, educators, and contractual assistance for this purpose. The fiscal year 1969 contract requires analysis of scientific and technological developments in non-M.C. & G. fields and the preparation of a compendium of newly developed or prototype equipments, materials, techniques, and concepts for which feasibility has been determined in the following functional areas: Imagery and data acquisition sensors and devices, automatic data and image reduction, displays, and graphics (compilation, processing, printings, and so forth), facsimile transmission, and photography. This compendium excludes developments already directed toward mapping and charting, geodesy, gravity, DOD aerial photographic systems and associated subsystems, surveying, and radar. It will contain information on those developments that are applicable and promising in potential applicability to the functions of M.C. & G. Expected completion time is 6 months from date of contract.

Accomplishments.—Contract under negotiation.

SCIENTIFIC AND TECHNICAL INTELLIGENCE

Contract title/purpose: Thermal pollution of arctic rivers.

Contractor: Classified will be provided separately to the committee upon request.

Fiscal year:

1967 ----- \$19,000
1969 ----- 25,000

* * * * *
Contract title/purpose: Command and control computer simulator.

Contractor: General Research Corp.

Fiscal year 1968 ----- \$15,000

Description.—To modify an existing digital computer simulation program for the special requirement of DIA; preparing documentation on the contents and use of the program, and assisting in the debugging and checking out of the routine on the DIA computer system.

Accomplishments.—This contract was completed in less than 6 months. The program developed has been used for the evaluation of special problems related to the U.S.S.R. air defense and strategic rocket force operations and command and control. The program has additionally been made available to the military scientific intelligence agencies for their use as a tool in accomplishing similar studies.

INTELLIGENCE PLANS AND PROGRAMS—DIA HEADQUARTERS

Contract title/purpose: Requirements and specifications for the DIA experimentation and research facility (task under Air Force contract F3062-67-C-0281).

Contractor: Planning Research Corp.

Fiscal year 1967 (R.D.T. & E.) ----- \$50,000

Description.—This study contract provided for one-time short-term technical assistance to DIA in detailed planning for the experimentation and research facility (ERF). The contractor was requested to study three representative

DIA intelligence production processes——in order to assist DIA in determining resource requirements for laboratory experiments designed to innovate such processes; Manpower levels and skills, physical facilities, equipment. Further, the contractor was to specify a recommended technically sound concept of operations, and a research plan for conduct of the pilot series of experiments. The contract was let March 31, 1967, and was terminated in January 1968 upon completion of the assigned work and delivery of two required studies.

* * * * *

Accomplishments.—The contract studies provided the information required by DIA. The contractor took advantage of prior experience of the Rand Corp. and others in designing and conducting experiments analogous in some respects to the intended DIA experiments. The parametric data provided in the studies enabled DIA planners to scale down significantly initial estimates of resources required for the program.

Contract title/purpose: Design of executive management planning and control (EMPAC) system

Contractor: Lockheed Missiles & Space Co.

Fiscal year:

1967 (O. & M.)	-----	\$75,000
1968 (R.D.T. & E.)	-----	90,000
1969 (R.D.T. & E.)	-----	235,000

Description.—The EMPAC System was designed, and is being developed, to incorporate the following characteristics:

1. Procedures to determine specific information and objectives (IEO's) for DIA as derived from national security policy.

2. Procedures (called factoring) for breaking down an IEO into components so basic that they can be satisfied with a simple answer. These are called basic information requirements (BIR's).

3. Procedures for assigning weights to BIR's in order to reflect their relative significance and to indicate priority of consideration.

4. Procedures for examining the DIA data base to identify those BIR's for a given IEO that are immediately answerable and those that require collection.

5. Procedures for developing and evaluating tentative plans for collecting and processing those BIR's that are not answerable from the data base; and, to identify several of the most cost effective plans from which a choice may be made.

6. Procedures to monitor the physical execution of the selected plan and to compare actual performance with forecasted performance.

Further contractual assistance will be limited to the technical skills and services not available within DIA.

Accomplishments.—During fiscal year 1967 and fiscal year 1968 external assistance was utilized in designing the EMPAC System. During fiscal year 1969 external assistance is being devoted to developmental testing, with one IOE used as a vehicle to accomplish the following:

(1) Development of an automated subject structure that will enable the generation of weighted BIR's for IEO achievement.

(2) Instruction of analysis to objectively assess the data base available to them, and measure the amount of answer than can be provided, and identify gaps in our intelligence.

(3) Development and partial testing of computer programs that will assist analysts in assessing the data base, identifying intelligence gaps, and separating BIR's into those that require collection and those that do not require collection.

(4) Development and partial testing of a computerized forecasting model that will generate alternate plans and identify those that are the most effective.

(5) Design of monitoring subsystem to provide management with visibility of the status and operational progress of IEO achievement.

SECURE COMMUNICATIONS SYSTEM (SPINTCOMM)

Contract title/purpose : Defense Intelligence Relay Center (DIRC) post acceptance programming assistance.

Contractor : Western Union.

Fiscal year :

1968 -----	\$45,000
1969 -----	12,000

Description.—This contract is to provide technical and programming assistance in the operation of the Defense Intelligence Relay Center switch after its acceptance in July 1967. This assistance is in areas not covered by the original lease and maintenance contract and is mainly to provide reprogramming actions as required to update the functions of the DIRC. This contract does not provide a monthly or annually recurring payment to the contractor, but provides funds on a piecework basis as the need for assistance occurs.

Accomplishments.—To date two reprogramming actions have been accomplished under this contract. The new capabilities programed into the switch are (1) the off-line message retrieval program which enables the automatic search and read out of any specific message handled by the switch during the last 30 days, and (2) the off-line message tracing program which will provide the point of entry, method of handling and delivery points of any message handled by the switch within the past 30 days. Both of these programs have worked well and have been very beneficial in terms of manpower saved and information available.

DEFENSE INTELLIGENCE SCHOOL.

Contract title purpose : Programed instruction.

Contractor : Various—see below by fiscal year.

Fiscal year :

1965 -----	\$4,000
1966 -----	4,000
1967 -----	8,000
1968 -----	20,000
1969 -----	35,000

Description.—In fiscal year 1965, the Defense Intelligence School's first programed text, entitled "Components of Strategic Intelligence," was developed. This text combined basic lectures given in 5 of 8 resident courses for ease of presentation in the 5 resident courses. In fiscal year 1966, a second unit on "The Intelligence Process," including a unique case study was developed. A third unit, "The Application of Logic to Intelligence Analysis," was completed in fiscal year 1967. All three of these units are used to provide students of appropriate courses with the required orientation in the basic knowledge needed as a foundation for from two to five of the eight resident courses. In fiscal year 1968 area studies were developed on the Soviet Union and Communist China. In fiscal year 1969, a contract is being awarded to develop a series of texts on the recognition of Soviet and satellite military equipment.

Accomplishments.—Programed texts prepared in fiscal years 1965, 1966, and 1967 have been most successful in that tests show that learning and retention are higher than experienced in the straight lecture methodology. The use of these texts allows the school to present the "basic core knowledge" that the student requires to absorb the course. Thus, students who are weak in background matter can use the programed texts to catch up allowing the instructor to cover assigned material on schedule. The fiscal year 1968 programed text is at the printers and has not yet been used or evaluated.

* * * * *

Contract title purpose : War gaming exercise.

Contractor : HRB Singer.

Fiscal year :

1966 -----	\$35,000
1967 -----	40,000
1968 -----	40,000

Description.—In fiscal year 1966, the Defense Intelligence School (DIS) began a series of intelligence oriented gaming exercises to be used with three of the four principal courses offered at the school. Each game was developed in order to provide for a full week of student involvement in the practical application, in as realistic a problem situation as possible, of the knowledge, techniques, and

skills which had been taught during the course of instruction. Each game is tailor-made for the particular course. For the advanced intelligence course, which is designed for senior military and civilian personnel, "Tiger Paper" was developed in fiscal year 1966. It emphasizes the management and planning aspects of intelligence. In fiscal year 1967, "Analyst Military Intelligence Gaming Operation" (AMIGO) was developed for the Intelligence Analyst course. In fiscal year 1968, "A Defense Intelligence Operational Study" (ADIOS) was developed for the Defense Intelligence Course as an exercise at the staff officer level. The students spend a full week applying the principles and concepts acquired in the preceding weeks to the solution of a realistic, simulated intelligence situation. Students participate in small groups or teams in the problem, which incorporates many of the latest educational techniques including role playing, simulation, case studies, problem solving and seminars. The exercises combine the use of both real and simulated intelligence.

Although the Defense Intelligence School does not have the staff necessary to develop such game internally, the Defense Intelligence School faculty plays a major role in the development of each game by providing its general concept, defining its scope, the major elements of its content and by working closely with contractor personnel at every step of the development of the game. Because of the time and manpower required to develop an integrated, valid, continuing game of 1 week's duration, the school must necessarily rely on contractual service to develop the sequence, phasing and other aspects of the game. The exercise developed for the Defense Intelligence Course (funded in fiscal year 1968) will be given to approximately 650 students and the one for the Intelligence Analyst Course will be given to at least 500 before it will have to be revised. The costs per student hour of the 40 hours of instruction range from \$1.90 to \$4.06 as compared to the range of \$4 to \$8 for each hour of instruction which prevails at the war colleges.

Beginning in fiscal year 1971, it will be necessary to start a program of updating existing war games. Normally, a game can be kept current and updated annually by the DIS faculty for about 5 years. The best of these gaming exercises, although basically sound as a teaching device, are subject to being overtaken by world events. Areas of special interest and activity change with the ebb and flow of international tensions. Changes of place names, and names of national and international political and military figures and changes in the world situation must be incorporated into each game about every 5 years to maintain an aura of currency and to insure student motivation.

Accomplishments.—"Tiger Paper" and "AMIGO" have both been presented several times with great success. Course and sub-course learning objectives have been amply satisfied and both faculty and student have found the exercises stimulating and rewarding. "ADIOS" has only been presented once, since its recent completion but preliminary evaluation indicates that it also is very successful in satisfying course objectives.

INTELLIGENCE DATA HANDLING SYSTEMS (IDHS)

Contractual assistance is used to obtain specialized technical support in the field of information sciences to improve intelligence data handling capabilities by introducing new techniques to expand the application of mechanized processes to intelligence production and to utilize newly developed automated and ancillary equipment systems. The products obtained through contractual assistance are in the form of automatic data processing systems analysis, design, computer programs and associated documentation.

From the establishment of the DIA Automatic Data Processing Systems Center through fiscal year 1967, DIA contractual assistance in support of intelligence data handling system (IDHS) programs was combined with Air Force contracts. This arose from the fact that this Agency and the Air Force jointly were participating in the development and improvement of automated intelligence systems. Also, the DIA does not have procurement authority, hence, the Rome Air Development Center (RADC), an Air Force activity at Griffiss Air Force Base, Rome, N.Y., is used as the contracting office for the procurement of all DIA IDHS "software" programs. Therefore, particulars relating to specific contract regarding IDHS projects and tasks during the early years of this Agency are not readily available. It will require extensive research into retired Air Force files to compile such information.

Starting in fiscal year 1968 the DIA entered into separate contractual agreements with firms dealing in computer systems analysis, design and programing

efforts; therefore, information is available on all IDHS contracts for fiscal year 1968-69 and is provided herein. Total amounts expended for external assistance contractual effort in support of the DIA intelligence data handling systems since inception are:

Fiscal year	O. & M.	R.D.T. & E.
1964.....	\$815,000	
1965.....	1,017,000	\$2,300,000
1966.....	871,000	1,856,000
1967.....	1,472,000	1,374,000
1968.....	1,653,000	1,120,000
1969.....	1,022,000	1,072,000

Contract title purpose: Systems improvement and programing support.
Contractor: International Business Machines Corp. (IBM).

Fiscal year	O. & M.	R.D.T. & E.
1968.....	\$705,000	\$486,000
1969.....	418,000	

The following projects/efforts are supported by this contract:

(1) *Formatted file system (FFS)*

Description.—The IDHS Formatted File System (FFS) was developed to establish standards for automatic data processing techniques and intelligence data systems throughout the DOD intelligence community. Contractual assistance is undertaken to continue improving the efficiency, accuracy and capability of FFS to respond to user's needs and to take advantage of advancing technology.

Accomplishments.—The contractor has and is continuing to provide support to assist in the analysis, design and implementation of FFS improvements.

(2) *National tasking plan (NTP)/Imagery*

Description.—In support of the National Tasking Plan (NTP) for the Exploitation of Multi-Sensory Imagery, this effort is to provide automated support to the complete cycle of intelligence production based on photo reconnaissance and to provide an accurate and readily accessible index to ——— aerial photographic coverage.

Accomplishments.—The fiscal year 1968 contract was to develop an automatic data processing system to support both routine and quick-reaction photo intelligence production requirements. The Imagery Reconnaissance Objective System and the Imagery-Derived Information System for Southeast Asia have been developed. The photo index file was converted to allow direct access of the file. The fiscal year 1969 project is to develop the capability of making changes directly to the aerial photo index file and is currently in progress.

(3) *DIA on-line system*

Description.—This effort was to support intelligence analysts by providing on-line direct access to automated files through a remote query console enhancing the analyst's capability to retrieve and correlate information.

Accomplishments.—Under the fiscal year 1968 contract the automated information files were developed. The fiscal year 1969 contract will develop a DIA On-Line System manual to provide users with a knowledge of the system's capabilities and to provide updated documentation for the system.

(4) *Community on-line intelligence system (COINS)*

Description.—The COINS experiment is a feasibility test of interagency information handling, making use of a system of interconnected remote access computers and computer-based files, to determine the utility of such a system. Member agencies are to have the capability to interrogate classified files maintained in the computer systems of other participating agencies through a central computer store and forward switch operated by DIA.

Accomplishments.—Under the fiscal year 1968 contract secure communications links were completed between the DIA central computer switch and the remote

access computer systems at three participating agencies and the remote access consoles at two others, making a total of six agencies now in the network. The DIA central computer switch was upgraded to handle the increased traffic. All files in the DIA on-line system have been made available in the network to service queries from the participants. The entire network is now in operational test phase 5 days per week and computer based classified files in the participating agencies are being interrogated by analysts in all agencies.

(5) *Minicard*

Description.—Minicard is an automated system for document storage and retrieval that contains raw intelligence on film chips, indexed according to content. Contractual assistance was used to convert the minicard system to a magnetic tape data base with a retrieval and maintenance capability.

Accomplishments.—In fiscal year 1968 the system to provide generalized maintenance and retrieval capability was designed. The fiscal year 1969 effort is currently in progress.

(6) *Techniques*

Description.—Contractual assistance was to provide display application and error detection techniques for the DIA automated intelligence data handling system.

Accomplishments.—In fiscal year 1968 graphic display techniques to assist photo interpreters were developed. Also developed was an error detection technique.

(7) *Programming systems support*

Description.—This effort was undertaken to provide the capability for computer programs written for the IBM 7094 to efficiently run on the IBM 360/30.

Accomplishments.—In fiscal year 1968 an analysis was conducted to determine methods to allow the IBM 7094 programs to run on the IBM 360/30.

(8) *Intelligence dissemination support system*

Description.—This effort was to provide a more efficient, orderly, and timely method for the control, identification, and distribution of intelligence documents.

Accomplishments.—In fiscal year 1968 the designs were developed and implemented for the automation of the customers' address file, and for querying the raw intelligence distribution history file and the finished raw intelligence file.

(9) *Standards*

Description.—This effort supports DIA's role as an assigned responsible agency for developing data standards in the areas of intelligence, geopolitics and security classification under the DOD data standardization program (DOD Directive 5000.11 and DOD Instructions 5000.12, 5000.14 and 5000.18). This program in turn supports the Federal standardization program under BOB Circular No. A-86. The goal is to insure effective, rapid, meaningful, and economical data processing, data communications, and data exchange by providing common (standard) data terminology, format, definitions, usages, and standard codes applied uniformly throughout DOD.

Accomplishments.—The following products and services were developed and produced or performed by the contractor in support of the DIA effort for data standards during fiscal years 1968 and 1969: Standard data elements/chains and related features for imagery exploitation data, North Vietnam (NVN) POL system instruction, analyst input forms for the files of operational target analysis (OPTAN), petroleum, oil and lubricants (POL), intelligence data element automated system (IDEAS), master imagery exchange format (MIEF), master imagery exchange and preparation of instructions for first and second phase imagery exploitation.

* * * * *

Contract title/purpose: Systems development and programming assistance.

Contractor: General Electric Co. (GE).

Fiscal year	O. & M.	R.D.T. & E.
1968.....	\$355,000	.....
1969.....	263,000	\$142

The following efforts are supported by this contract :

(1) *DIA/IDHS transportation service development*

Description.—This effort was undertaken to construct and implement an integrated multimode transportation file. The system will provide for the entry, storage, processing, computation, maintenance, and retrieval of intelligence associated with transportation lines of communications. The system is to support requirements for intelligence needed for strategic and tactical logistical estimates, evaluation of current transportation capabilities, related target, and target systems correlation. The file will include intelligence for the following modes of transportation: rail, highway, inland waterways, pipeline routes, civil air routes.

Accomplishments.—In fiscal year 1968 the systems design for rail mode of transportation, including a capability for network analysis and capacity calculations, was completed. The fiscal year 1969 systems analysis currently in progress continues to support the attainment of an initial operating capability for the rail mode of transportation. Systems analysis, definition of systems specifications and system design of the highway mode of transportation are under development.

(2) *Weapons application and target analysis*

Description.—This effort was initiated to enhance capability to undertake a variety of weapon application and target studies on short notice.

Accomplishments.—The fiscal year 1968 analysis and programming of specific subjects included fallout casualty assessment, war plan evaluation, and weapon application.

(3) *Plotting and collocation systems techniques*

Description.—This effort was to improve and expand plotting systems and to improve collocation techniques.

Accomplishments.—In fiscal year 1968 the automated system was reprogramed to recognize and rectify congestion on plots, new plotting routines were added and collocation techniques were improved.

(4) *Collection management*

Description.—Establishment of a single automated computer file for the control of all of the DoD collection management requirements, specifically, collection requirements entries were to be automated and added to the collection requirements file. The contract was to develop an automated collection assets inventory subsystem, to assist in determining the optimum levying of collection requirements and collection postures to respond to high priority intelligence requirements in crisis areas.

Accomplishments.—In fiscal year 1968 several subregistries were automated and added to the collection requirements file. The collection assets inventory was completed. The fiscal year 1969 contract, currently in progress, will provide system analysis, design and file development in the validation of all DoD aerial imagery intelligence collection requirements.

(5) *Biographics*

Description.—The contract is to adapt the military biographics systems, currently in use by the Fleet Intelligence Center, Europe. The system is to provide personality and biographic intelligence data about foreign military individuals for OSD, JCS, DIA, military departments, the U. & S. commands, USIB agencies, high level military schools and other authorized users needed for successful conduct of international military and political actions.

Accomplishments.—This contract is currently in progress.

(6) *IDHS cobol data management system (CDMS)*

Description.—This effort is to convert the retrieval and output modules of the existing 1410 formatted file systems (FFS) from autocoder language to the USA standards institute common business oriented language (COBOL) in order to develop a relatively machine independent data management system, having an on-line query and output capability.

Accomplishments.—This contract is currently in process.

* * * * *

Contract title/purpose: Electronic intelligence (elint) requirements and capabilities management system (ERCMS).

Contractor: General Electric Co. (GE).

Fiscal year	O. & M.	R.D.T. & E.
1968.....	\$80,000	.....

Description.—The objective of the fiscal year 1968 effort was to provide DIA and the unified and specified commands with responsive electronic intelligence (ELINT) planning and exploitation utilizing automatic data processing support. The contract called for an analysis of the existing ELINT requirements and capabilities, followed by the design and implementation of a management system to assist in validating, leveling, and monitoring ELINT requirements.

Accomplishments.—In fiscal year 1968, analysis of the present ELINT system was completed, a preliminary design for DROMS was developed and system specifications for two subsystems were completed. A partial implementation of one subsystem was initiated.

* * * * *

Contract title/purpose: Analyst support and research system (ANSRS)

Fiscal year	O. & M.	R.D.T. & E.
Contractor: General Electric Corp.:		
1968.....	\$246,000	\$95,000
1969.....	80,000	393,000
Contractor: Software Products:		
1968.....		92,000
1969.....		192,000
Contractor: Anderson & Co.:		
1968.....		17,000
1969.....		21,000

Description.—Project ANSRS is a development effort which was undertaken to design, implement, test and evaluate in an operational environment the applicability and utility of advanced ADP technology to the solution of intelligence data-handling problems. ANSRS is designed to permit an intelligence analyst or manager to interact directly with an automated data base or computational capability instead of working through programmer intermediaries. The analyst queries and/or maintains the data base files with which he works, thereby minimizing the time and effort expended in obtaining or maintaining information and allowing more time for creative analysis or management.

Accomplishments.—Under the fiscal year 1968 contract, the General Electric Corp. assisted in-house DIA software personnel in developing an on-line, remote access, time-sharing automated data processing system for application to intelligence functions. DIA personnel from the Collection, Intelligence Production and Scientific and Technical Intelligence Directories then developed specific applications of the generalized ANSRS capability to functions within their respective elements, with the assistance of in-house DIA computer systems personnel. Operational data base files developed in this manner and currently available in the system are:—

Other files on the system are:

5. System access log and directory (system security and administration).
6. ANSRS test file.
7. User's guide (training) file.

A large number of on-line computational programs and routines are available in ANSRS. These are used primarily by targeting and weapons effects analysts.

Under the fiscal year 1969 contracts with General Electric and Software Products, development effort has been devoted in part to system software improvement and modifications based on results of the official ANSRS test and evaluation. Other contractor efforts have been applied to the design and partial development of an integrated multimode system (batch, remote batch and time-sharing) which provides the capability for concurrent processing of data through remote terminals or directly at the central computer site. The Anderson and Co. contract has involved the development of system security measures which would allow ANSRS to be accredited for operation in a multilevel security environment.

* * * * *

Contract title/purpose: DIA cartographic mapping, charting, and geodesy management information system.

Contractor: Planning Research Corp. (PRC).

Fiscal year	O. & M.	R.D.T. & E.
1968.....	\$119,000	
1969.....	85,000	

Description.—This project was undertaken to develop the design for an automated data processing (ADP) system to manipulate data inputs and to provide the output information needed to support the DOD mapping, charting, and geodesy management responsibilities of DIA. The contractor was to provide systems analysis and detailed system design of the area requirements/cartographic products segment to support short and long range DOD MC&G requirements necessary for integration into the MC&G Production Management System.

Accomplishments.—Under the fiscal year 1968 contract the concept for the ADP system to support the DIA Cartographic Management Information System and the systems design and programing for the area requirements/cartographic products file were accomplished. In the fiscal year 1969 contract further improvements to the DIA Cartographic Management Information System will be undertaken to refine the segment developed under the fiscal year 1968 contract by incorporating the air target material system and to commence development of the detailed system design to provide a graphic output capability.

* * * * *

Contract title/purpose: Data standards.
Contractor: Planning Research Corp. (PRC).

Fiscal year	O. & M.	R.D.T. & E.
1968.....	\$66,000	
1969.....	79,000	

Description.—This effort supports DIA's role as an assigned responsible agency for developing data standards in the areas of intelligence, Geopolitics and security classification under the DOD data standardization program (DOD Directive 5000.11 and DOD instructions 5000.12, 5000.14, and 5000.18). This program in turn supports the Federal standardization program under BOB Circular No. A-86. The goal is to insure effective, rapid, meaningful and economical data processing, data communications and data exchange by providing common (standard) data terminology, formats, definitions, usages and standard codes applied uniformly throughout DOD.

Accomplishments.—The following products and services were developed and produced or performed by the contractor in support of the DIA effort for data standards during fiscal years 1968 and 1969; list of data elements and related features to the equipment portion of the ARTS was delivered, changes to air target materials program, revision to data standards for mapping, charting, and geodesy support system, data standards for the security classification area, data standards for ports and naval installations, input instructions for transportation intelligence and input forms and instructions for numerous other files.

* * * * *

Contract title/purpose: Central information reference and control on-line experiment (colex).
Contractor: Systems Development Corp. (SDC).

Fiscal year	O. & M.	R.D.T. & E.
1968.....		\$227,000

Description.—Coxex was an experiment which provided on-line direct access from remote data terminals to bibliographic references to documents of foreign science and technology. Document citations were stored in automated form in an Advanced Research Projects Agency (ARPA) time-sharing computer. The objectives of the experiment were to test the efficacy of the system and to define requirements for an operational system.

Accomplishments.—In fiscal year 1968 the experiment concluded that there was a growing need for an on-line system to provide scientific and technical information to DOD approved users. The design and programming for the on-line system was developed during this experimental phase. On July 1, 1968, the operational Central Information Reference and Control (CIRC) on-line (CIRCOL) system was implemented with the Foreign Technology Division (FTD), Wright-Patterson Air Base, Dayton, Ohio, as the DOD executive agent.

* * * * *

Contract title/purpose: Scientific and technical thesaurus.
Contractor: Systems Development Corp. (SDC).

Fiscal year	O. & M.	R.D.T. & E.
1968.....		\$203,000

Description.—This effort was undertaken to provide a comprehensive computerized thesaurus of scientific and technical terms to be used for information processing by scientific and technical intelligence activities of the Department of Defense. The thesaurus will contain the terms, phrases, nicknames, and interrelationships unique to defense, scientific and technical intelligence activities. It will satisfy internal indexing, retrieval and dissemination requirements of individual organizations and also enhance communication between organizations. The thesaurus will be used with an on-line, direct access computer based system to service analysts in the DOD scientific and technical intelligence community.

Accomplishments.—The thesaurus is in the final stages of completion.

* * * * *

Contract title/purpose: Text processing techniques development and test/OCR evaluation.
Contractor: Bunker-Ramo Corp.

Fiscal year	O. & M.	R.D.T. & E.
1969.....		\$125,000

Description.—The purpose of this project is to improve accession and dissemination of intelligence materials through automating the process of content indexing. Included are: the development of a dictionary of thesaurus terms structured to recognize intelligence indexing concepts and to minimize computer processing time; a procedure which uses the thesaurus to select indexing terms; a parsing module which attempts to resolve certain language ambiguities. Additional programs provide aids to continual development of the thesaurus, e.g., term frequency information. A multifont optical character reader (OCR) has been leased for a period of 1 year to place typewritten text on magnetic tape for computer processing. The OCR is being evaluated as to its feasibility and effectiveness for performing this function.

Accomplishments.—A partial thesaurus of significant military terms covering limited subjects and geographic areas has been developed. Computer programs which index intelligence information reports (IIR) have been written and limited success has been demonstrated. Special forms have been produced. These are used by selected collection agencies for regular reporting to test the system under realistic conditions. These reports are being run through the automatic text processing system on a regular basis to provide a basis for analysis, evaluation, and modification of the system.

* * * * *

Contract title/purpose: COINS switch monitor, backup and computer integration.
Contractor: Western Union Co.

Fiscal year	O. & M.	R.D.T. & E.
1969.....		\$199,000

Description.—The major tasks under this contract are twofold:

(a) To develop a capability for a computer used in a utility processing role to monitor a (second) computer used as a store and forward message switch, allowing the utility computer to automatically assume the functions of the switching computer, should the latter fail.

(b) To design a systems plan placing all computers in the DIA computer center under the control of a single supervisory computer program. A single control program will increase computer efficiency, provide remote terminals access to any and all data bases and provide backup in the event that one central processing unit should malfunction.

Accomplishments.—This contract is currently in process.

* * * * *

Contract title/purpose: Keypunch and verification.
Contractor: Auto Data Services, Inc.

Fiscal year	O. & M.	R.D.T. & E
1968.....	\$82,000	
1969.....	97,000	

Description.—Keypunching is the process used to convert written material into machine readable punched card form. DIA requirements for keypunching and key verifying averages 68,000 cards per week, of which approximately 30,000 on average are performed in-house with the balance provided under contract. This is a continuing effort which accommodates to peak input periods when volume exceeds in-house keypunching capability.

Accomplishments.—In fiscal year 1968 1,779,212 cards were keypunched and verified by contract. During the first 11 months of fiscal year 1969 1,554,048 cards have been keypunched and verified by contract.

EXAMPLE OF AN EXTERNAL ASSISTANCE CONTRACT

Mr. WHITTEN. Now name one that you recall offhand, and tell us in your everyday language, if you can, what they are doing.

General CARROLL. The first on my list is a long, continuing program, and \$350,000 is the amount that we are requesting in the fiscal year 1970 budget.

This contract, _____ has been in being for many years in the Department of Defense. It was in being before DIA came into existence, and on the basis of our evaluation of it, it was of such high value that we have continued it at roughly the same level as it had previously been operated by the Army, _____.

I have some exam. _____ of the kind of product that is produced which you may wish me to allude to. This represents a very unique asset to DIA. It has two primary advantages. It permits DIA to obtain access to a large reservoir of technical expertise _____ and makes available the extensive technical information base _____.

Mr. WHITTEN. That sounds very nice, but I am asking what they are doing for you. What are the terms of the contract? Have you a copy of the contract?

General CARROLL. I have copies of work order statements with me.

Mr. WHITTEN. Have you copies of the contract?

General CARROLL. I have copies of amendments to the contract. I will have to get the contract itself from the contracting officer.

Mr. WHITTEN. I would like to have that, plus the amendments. My information is that two or three of these contractors, in order to get a Government check, have just stricken out the old date and put a new

date on it, on occasion. Can you remember ever terminating one of these contracts?

General CARROLL. We have terminated contracts, yes, sir. As a matter of fact, the one that comes to mind now is when DIA came into being, we inherited a contract with Georgetown University, a transportation contract. I decided I could do the job much cheaper in-house. We terminated that contract. We have had a number of others which we have either terminated or drastically reduced.

Mr. ANDREWS. Before you get away ——— where is the work done, how many people are doing the work, and what machinery, if any, is used in the performance of the contract? Give us a little more information about it. Tell us what they give you in return for the \$350,000 and, if you will, please, give it in layman's language so we can understand it.

General CARROLL. The work is done ——— here in the Washington area. Incidentally, one of the points that was considered essential in the contract was that the contractor be located in the Washington area so we could have the personal interrelationships between the production analyst and the contractor in the development of the contract.

Mr. ANDREWS. They are in the Washington area. Where? In what building?

General CARROLL. It is ——— here in the Washington area. I can provide the address for the record, sir.

Mr. ANDREWS. Rental property or Government property?

General CARROLL. ——— owned property.

Mr. ANDREWS. I assume they pay for the rent out of the \$350,000.

General CARROLL. I assume this is just a portion of the operation.

MAN-YEARS DEVOTED TO CONTRACT

Mr. ANDREWS. How many people are actually working on the project?

General CARROLL. At the present time, I believe it is 17 man-years.

Mr. ANDREWS. Full-time?

General CARROLL. It probably would entail a number of people contributing a total of 17 man-years to the performance of the contract.

Mr. ANDREWS. What do you mean by 17 man-years?

General CARROLL. The equivalent of 17 men full-time.

Mr. ANDREWS. Five days a week, 52 weeks a year?

General CARROLL. Yes, sir.

Mr. ANDREWS. You do not know whether it is the same 17 men or a group of men totaling 17 man-years?

General CARROLL. I believe it is the latter, sir.

END PRODUCT OF CONTRACT

Mr. ANDREWS. What did they deliver to you? If they are ——— here in Washington, certainly they are fenced in, so to speak. They cannot leave the city. They are doing intelligence work in that building. Tell us what they do and what they have delivered to you.

General CARROLL. They respond to the tasks which we place upon them in accordance with the provisions of the contract. We task them

to produce annually from between 40 to 50 ——— studies in all areas of the world, and to provide information to DIA's automated file ———.

These studies and reports are received by DIA subject to DIA's quality control and incorporating not only the vast amount of ——— data which is available ———.

Mr. ANDREWS. When we get on the floor of the House, General, and somebody tries to cut out the \$350,000 from your appropriation for this ——— contract, if we were to read word for word your answer, I do not think it will satisfy the opponents of this program.

I wish you would tell us, if you can, if it is possible, just what they give you for the \$350,000. Do they give you booklets, pamphlets?

General CARROLL. They give us a finished study. Here is one ———.

Mr. ANDREWS. Did they do it under this contract?

General CARROLL. Yes, sir, under this contract. It is dated May 1968. It is in conformance with the requirements which we have laid on them for this kind of updated study. It has all the data in it pertaining to ——— facilities ——— to meet requirements of the Department of Defense and other users of this product within the Government.

Mr. ANDREWS. What product is this?

General CARROLL. This is what we have received under our quality control supervision ———. This is a draft which, after we have reviewed and approved it in relationship to its proper utilization of the data as responsive to the need, is then used as part of our national intelligence survey program which is monitored by CIA. It is submitted to them for editing and for publication.

This is used as the basis for this final product (indicating) : ———.

We have the same thing on many other countries of the world which they have contributed.

Mr. MINSHALL. How much did that report cost?

General CARROLL. This is one of the 40 or 50 which they produce each year under the contract to the amount of \$350,000.

Mr. ANDREWS. All that work was done here in that office in Washington, ———.

General CARROLL. Yes, but the input to this particular office in Washington came from the total ———.

Mr. ANDREWS. I was interested to know whether or not under this contract they furnish any field men ———.

General CARROLL. What they do, sir, is not collect specifically for us. They have to collect in conjunction with their own operation.

Mr. ANDREWS. Could we see that finished product?

General CARROLL. Yes, indeed, sir, and many others.

Mr. ANDREWS. No. Just one. I would not have time to go through all of them.

General CARROLL. The one that I described there had to do with the national intelligence survey, which is a joint community effort.

NEED FOR COORDINATION OF INTELLIGENCE ACTIVITIES

Mr. WHITTEN. General, this is frightening to me. You assigned this job. You are very articulate in testifying. You know a good many words with a good number of syllables. I have yet to get any comfort out of your testimony about streamlining any of this activity. You

have been assigned the job of telling us what we face 20 years from now, which in turn will be reflected in budgets, planning, expenditures, and inflation.

We find that you are looking to contractors to tell you what to tell us so you can keep this military machine going for 20 years, perhaps. Some people might see it that way at least I believe you said the Secretary of Defense has the job of seeing that our intelligence efforts are not duplicated.

The committee has some information which I think I should bring to your attention here.

Contract No. DA8C1567C0053. The contract has been completed, but much of the information was just taken out of earlier reports and put together and relashed and turned over to you. That contract was with _____.

Also, we have information on contract No. DA8C1567C0053 that is now for \$500,000, increased from the last contract. The previous contract was \$280,000.

You have another contract here, a publication for DIA employees only, which is being sent through the mails under DIA frank.

Somebody is supposed to be coordinating this. In our cursory investigation up to now, we find the Air Force has three contracts to get the same thing. Now you want 41 additional people, additional computers and additional contract money just to carry on the same thing.

I also have before me Mr. Nitze's letter of December 27 addressed to the chairman in which he indicates that they are doing something about our report of last year. He also mentions that they want to get you further away from, I presume CIA and the other intelligence agencies, so he ends with a plea to give you a new big building. I think that letter should appear in the record at this time.

(The letter follows:)

THE SECRETARY OF DEFENSE,
Washington, December 27, 1968.

Hon. GEORGE H. MAHON,
Chairman, Committee on Appropriations,
House of Representatives,
Washington, D.C.

DEAR MR. CHAIRMAN: In response to the Committee on Appropriations report for the 1969 Department of Defense appropriations bill, which recommended that we take action to see that improvements are made in the management and operation of the intelligence activities of the Department, I will review the actions we have taken, and will be taking in the near future to improve the management of DOD intelligence activities.

The intelligence community is operating in a complex, constantly changing environment. As a result, we are confronted with requirements generated at the national, departmental, and operational command levels, the magnitude of which could not have been prophesied in 1961 when DIA was created. The response to these ever-increasing demands for the product of the intelligence community has been the creation of a group of interlocking, mutually supporting intelligence organizations and systems at the national, departmental, and operational command levels. Some of these organizations like DIA are part of DOD; others are not; collectively they make up the intelligence community.

We are continually seeking ways to improve the quality and timeliness of our input to the intelligence community's product. We have reviewed the March 1968 survey and investigations staff report on the "Management and Conduct of Military Activities in the Department of Defense" (which I will refer to as the "HACIT report") and it has provided a most helpful analysis of our activities. Since DIA has already provided you, through testimony before your subcommit-

tee and in written comments, with information on specific criticisms noted in the HAOIT report, I would like to emphasize key areas where, in my judgment, broad improvements are taking place in the management of DOD intelligence.

The first major improvement relates to the committee report statement that DIA and the military services should deal in more realistic priority requirements. Recognizing this, the Joint Chiefs of Staff or updating their statement of strategic intelligence objectives and priorities in the intelligence annex to the joint strategic objectives plan (JSOP) with a view toward improving ongoing identification of intelligence requirements against which future effort can be directed DIA is translating these requirements into a system for controlling priorities for production planning.

An associated activity in the requirements area has been the development of the target oriented display (TOD) by a group under the chairmanship of the Director of Central Intelligence (DCI) with participation by representatives of the Office of the Secretary of Defense (OSD), DIA, the DCI staff and the Bureau of the Budget staff. This management tool shows how intelligence resources are directed against satisfying major intelligence requirements. The TOD provides a more precise analysis than was previously available of the allocation of our intelligence resources and gives us a horizontal look at costs across several programs directed against a given target. The initial output of the TOD indicates that this system has great potential value as indicator of possible areas of distortion in the allocation of intelligence resources. Additionally, it enables us to look at those requirements requiring high cost collection systems to insure that the magnitude and relevancy of the requirements are valid and funded at the proper level. Our "first cut" version of the TOD has proved encouraging and has highlighted areas where further analysis is required. Future development and expansion of the TOD system is under study by the DCI-chaired group.

Your committee report asserted that too much time, personnel and money are spent in accumulating a wide variety of information of no immediate and of doubtful future value. We recognize that there is a need for continuous control over collection of information and over the routing of information to production analysts to insure that only relevant intelligence collection reports are sent to the analyst. However, we must collect and place in the data base a great deal of information of a more permanent character, even though that information may not relate to a specific situation at the time it is collected. The relationship to a current situation cannot be the sole criterion of the relevancy and value of information to be collected. Related to this is a current DIA project in which six experienced analysts are reviewing each incoming hard copy information report to determine if the report has any current or future intelligence value. Significantly, out of about _____ reports processed during the first 5 weeks of operation, less than one-half of 1 percent were finally rejected by the quality control panel of analysts and the supported intelligence production analysts.

Production activities continue to reflect improved management by DIA. In implementing the defense intelligence plan over the past 2 years, DIA has directed its energies toward publishing comprehensive standard operating guidance in all functional areas in a standard system of intelligence guidance manuals. Since your staff investigation and the appropriations hearings, DIA has published a basic manual for intelligence production, manuals on exploitation and production of imagery intelligence aimed at achieving a more effective program in that large, high-cost area, and a greatly revised and expanded manual on human resource (HUMINT) collection. At the present time, DIA has a manual for order of battle production in draft form. This manual is designed to standardize the format and approach to order of battle intelligence among all DOD components and should result in improved economy of effort and better mutual support on a worldwide basis.

On October 11, DIA concluded its worldwide production and automation conference. Conferees included representatives of the military departments, unified and specified commands, and component commands. Significant results of the conference included:

(a) Implementation of the defense intelligence production schedule (DIPS) as the primary management device for DOD-wide intelligence production.

(b) Adoption of a standard biographic intelligence automation system, and standard format guide for order of battle production.

(c) Agreement on a worldwide program to develop compatible and mutually supporting files on environmental and transportation intelligence, and on priorities for their automation.

We feel that a particularly promising activity in production operations is that of automated support for analysts in access to information data bases. DIA is engaged in two major improvement projects in this area.

The first is a Washington-level intelligence community computer communications system (COINS) which is intended to make possible on-line queries by an analyst in one agency to the computer in another. ———. The system is currently in limited operational use, although the current test and evaluation period will extend to June 30, 1969.

At this point I should mention the Minicard automated document storage and retrieval system which was criticized in the Hacht Report. We are keeping this system under very close scrutiny. While it is true that the Minicard system has deficiencies, it has performed well in the purpose for which it was originally designed—the effective storage and retrieval of a large volume of documents at a relatively low cost. It has been in extensive operational use for nearly 10 years and is becoming obsolescent in terms of modern technology. We are currently studying likely candidates as a replacement for this system.

The next major topic is the consolidated intelligence program (CIP). Our CIP review group completed a comprehensive critique on October 14 in which the members addressed the deficiencies noted not only by your investigators, but by the review group members themselves. The group recognized that the CIP had become an administrative burden for all concerned, and that it could be improved to assist more effectively in the management of defense general intelligence resources. In particular, it was noted that the CIP was not oriented to show the relationship of resources among the various functional areas in terms of end objectives. The review group recommended that the thrust of the CIP be modified to identify major intelligence issues or missions and that studies be conducted beginning with a critical evaluation of the requirements followed by an analysis to identify the appropriate level of resource allocation. This process would cut across the major functional areas (collection, processing, production) and would analyze all resources associated with discrete intelligence tasks. This approach will focus DIA and review group attention on those areas where major mission capabilities and significant resources need to be evaluated and possibly adjusted.

The review group recommended retention of certain aspects of the existing CIP process including the present program change request (PCR)/program change decision (PCD) procedure in order to price out in some detail the decisions on major issues, both as a means of adjusting the 5-year defense program as well as providing sufficient budgetary guidance to the services.

The requirement for less detail in supporting information was also recommended by the review group. The shift to the major issues review approach noted above will ultimately eliminate much of the detail associated with the existing CIP review process. Such a reduction cannot be immediately achieved, since this year's review will be one of transition from the old to the new process, and some carryover of previous review methods for large areas of the CIP resource aggregation will continue to be necessary. It should also be noted that full transition to the major issues review approach does not totally eliminate the need for detailed data. For those major issues which are selected for study, detail will be required on the relative importance of stated intelligence needs, their contribution to military effectiveness, and the costs and benefits associated with alternative courses of action. The Defense Comptroller incorporated the review group recommendations in his program to the Director, DIA who has published appropriate instructions and is coordinating this new approach to management within the CIP process.

There are several other areas on which I would like to comment briefly. We have effected consolidation of the Washington-level control of field human resources intelligence collection (HUMINT). This consolidation was directed by the HUMINT implementation plan approved in January 1967. This program has been delayed because of the problems inherent in locating such an operation in the existing facilities of the metropolitan area. DIA and the military departments' HUMINT collection operations have been moved to a common control center at Fort Belvoir and they are now implementing the HUMINT plan.

I would also like to comment on the criticism in the committee report concerning the relationship between DIA and the service intelligence organizations. We recognize the need to reexamine the interface between those functions being

performed by DIA and those functions being performed by the service intelligence organizations. The quantum jump in intelligence requirements coupled with advances in collection and processing techniques has diffused the relatively clear demarcations of responsibility which were established when DIA was created. Based on your investigative activities, plus several in-house inspections of the functions and responsibilities as they currently exist, we are taking action to better define intelligence functions and responsibilities within DOD.

Finally, the committee report, the HACIT report and the hearings stressed a failure, in part, to analyze current intelligence. General Carroll pointed out in his testimony that every effort is made to analyze for follow-on corrective action what in retrospect may be considered to be less than timely, complete and pertinent intelligence. I know you recognize we may never be able to achieve a perfect record in this respect, but we are constantly striving toward that objective. Notwithstanding, DIA, by any standard, has demonstrated its value. Within the intelligence community it is a young organization. While improvements can and are being made, we should not lose sight of the fact that it has achieved a high degree of professionalism in a fairly short time. The management activities which I have discussed are part of the continuing program which should have the cumulative effect of improving the effectiveness and efficiency of DOD intelligence activities.

The Director, DIA indicates the greatest obstacle to improvement of production operations in his agency—the largest production agency in the general intelligence area—is the continued dispersion of DIA production, production support, and collection elements in several scattered and operationally inefficient facilities. Accordingly, we believe our request for a new building to provide an adequate consolidated operating facility for DIA strongly merits congressional approval.

I have appreciated this opportunity to provide you with information, which I feel substantiates an atmosphere of continuing progress in DOD intelligence activities. I am confident that the DOD intelligence activities will continue to respond to the intelligence requirements of the Defense establishment and the Nation.

Sincerely,

PAUL H. NITZE.

Mr. WHITTEN. Today the committee was delivered by hand the following memorandum from the present Secretary of Defense, Mr. Laird, who served on this committee last year when we had this investigation. We quizzed you at that time the best we could on some of the shortcomings and failing of our intelligence services regarding the *Liberty* incident and the *Pueblo* incident and the Tet Offensive, and the Bay of Pigs was not too distant in history.

Secretary Laird's letter will appear in the record at this point.
(The letter follows:)

THE SECRETARY OF DEFENSE,
Washington, D.C., April 29, 1969.

Memorandum for Secretaries of the Military Departments, Chairman, Joint Chiefs of Staff; Director, Defense Research and Engineering; Assistant Secretaries of Defense; Director, Defense Intelligence Agency; and Director, National Security Agency.

Subject: Management of DOD Intelligence Resources.

After considering the recommendations of the Director, Bureau of the Budget, Director of Central Intelligence, and others, I recognize the importance of insuring continuous high level review of all of the Defense Department's intelligence programs. There is an apparent need to have one focal point for intelligence resource matters, including the development of a review and decisionmaking process for intelligence resource allocation. The latter will integrate the program review of Defense intelligence programs with full recognition of the relationship of each program to the others and to the total efforts of the national intelligence community.

Accordingly, as of this date Mr. Robert F. Froehke, Assistant Secretary of Defense, Administration, is assigned additional duty as Special Assistant for

Intelligence to the Secretary and Deputy Secretary. In this role he will be our principal adviser on intelligence resource management.

In addition, I request the Special Assistant for Intelligence to provide me within 45 days a study of the intelligence efforts within the DOD. This study should analyze alternatives and provide recommendations in the following areas:

(a) DOD intelligence organizational structure, to include the responsibilities and relationships of elements of the OSD staff as well as the military departments, the JCS, DIA, and NSA.

(b) The process by which national and DOD intelligence requirements are established.

(c) The means by which these requirements are satisfied including collection, processing, production, and dissemination of finished intelligence to appropriate user agencies.

The study should be coordinated with appropriate elements of the DOD and the intelligence community.

Please cooperate in assisting Mr. Froehle in carrying out these tasks, particularly in his study of intelligence activities.

MELVIN R. LAIRD.

Mr. WHITTEN. Apparently Mr. Laird can see that what we are trying to do here needs to be done. I presume that subsection b, as follows: "The process by which national and DOD intelligence requirements are established" would be broad enough to include these contracts on which we are not only counting for our safety at the moment but for our planning for the next 20 years.

Are you familiar with the two letters?

General CARROLL. Yes, I am.

Mr. WHITTEN. What are your feelings?

General CARROLL. I think it is good. The point here is not one merely of its being a mechanism that can address some of the problems you and I have been discussing, Mr. Whitten, but beyond that, this provides for a better integration of relationships between the program that I am presenting to you and the program presented to you by General Carter of NSA and intelligence resource programs that are submitted by other elements of the Department of Defense. Consequently, this is a mechanism which is going to permit the Secretary of Defense to draw all of these together in competitive relationships, one with the other and in direct relationship to the requirements which they are designed to satisfy.

DUPLICATION OF EFFORT

Mr. WHITTEN. Do you take this directive as sufficiently pointed and sufficiently specific to avoid letting three contracts for the same information?

General CARROLL. It certainly would be designed to accomplish that, sir; although I am not familiar with our having three contracts for the same information.

Mr. WHITTEN. That is our information. I think other members may go into more detail about it later, but that is our information at this time.

Do you take from this that Secretary Laird recognizes, as we think we do, that we have to pull this thing together and see who is chief cook? At least, we do not need a lot of duplicating cooks.

General CARROLL. I think you are right, sir.

LONG-RANGE THREAT PROJECTIONS

Mr. WHITTEN. Is this responsibility for 20 years really a DIA-type responsibility?

General CARROLL. DIA's responsibility under the direction it has received from the Joint Chiefs of Staff and the Secretary of Defense is to produce intelligence required in support of the national planning effort in the Department of Defense. They have decided that there is a requirement for this kind of information in support of Army, Navy, and Air Force force projection planning.

That requirement having been verified, and since it is cleared that to do that planning there is a need for an assessment pertaining to military capabilities of foreign nations in the time frame required, it then is DIA's business to do it.

Mr. WHITTEN. I am trying to indicate the feeling of inadequacy I feel in this area. I quote from your statement in which you say concerning this assignment that you would require "an external assistant contract to correlate political, economic, psychological, social, and institutional factors——".

If you have to contract out that part of it, what have you left to do except to reduce it to writing?

General CARROLL. Actually, what we will request on the basis of these external contract assistance relationships is inputs to our overall study. I will have a 38-man group organized as an interdisciplinary team, geographic specialists, sociologists, economists, political and technological specialists and, of course, military intelligence specialists. They are the ones who will produce the projection and forecasts of possible conflict environments throughout the world——.

The inputs that we will get from the external assistance contracts that we are discussing now would be by drawing on the growing body of political, economic, and social scientists in the United States who have devoted their full time over many years to forecasting world trends.

We also need to learn more from mathematicians, operations analysts, and systems analysts in this country who are leaders in developing the latest analytic techniques and methodologies in projecting this far into the future.

Many of these contracts have been let in many areas over the past many years to produce an end product. Those contracts should now be terminated, having previously been let by the services. At a much lesser cost, DIA will be letting some external assistance contracts, not to produce an end product, but to make an essential input to the very complicated projections that we are going to endeavor to make.

QUALIFICATION OF INDIVIDUALS FOR THREAT ANALYSIS

Mr. WHITTEN. I have known a few people who are qualified academically, which is the description you use. Most all of them, I would guess, have a Ph. D. or at least an M.A. degree, and they have written theses or otherwise have taken a given position. If you went out and hired people in that area, couldn't you almost hire them to reach any conclusion you might desire? They would be perfectly honest about

it, but they have a fixed attitude already. How would you find anybody who would go about this objectively, and what are your qualifications to select such an individual?

General CARROLL. My own people are going to be the ones who analyze the inputs which are received from them. We have to be careful in selecting the people with whom these contracts are made in the first place.

Mr. WHITTEN. Who in your shop is qualified to select these people?

General CARROLL. The people I have working on the long-range projections who are cognizant of the inputs they want.

Mr. WHITTEN. What are their backgrounds?

General CARROLL. They are military and civilian intelligence specialists in the interdisciplinary fields that I mentioned.

Mr. WHITTEN. You gather, as you say, raw data and put it together and come out with what you call manufactured intelligence. Is that not a detailed-type thing as against this long-range planning? Don't you acknowledge long-range planning has to be by these other people?

General CARROLL. The long-range planning, by all means.

CONTRACTORS QUALIFIED FOR LONG-RANGE THREAT PROJECTIONS

Mr. WHITTEN. What corporation or who among your present contractors are qualified to take on this assignment?

General CARROLL. This would be accomplished through the medium of competitive bid. I have not had any particular contractor in mind, but there are many who could make major contributions to us in this area.

Mr. WHITTEN. What assurance under such a contract do you have that they will live up to the terms of the contract?

General CARROLL. Such as one does in the effective administration of any contract, Mr. Whitten.

Mr. WHITTEN. Would they pay cash damages if we have another *Liberty* or *Pueblo* or another Tet offensive in spite of their advice to you? Would they be liable in costs?

General CARROLL. We are not asking the contractor to assume that responsibility, Mr. Whitten.

RESPONSIBILITY OF CONTRACTOR

Mr. WHITTEN. I am asking you, what are you asking him to assume?

General CARROLL. We would be asking him to make inputs in accordance with the requirements that we establish as to sociological trends, economic trends, projections of demographic studies in conjunction with economic indicators as to what the environment will be in a particular country in, let us say, the 1985 timeframe. Assimilating that sort of input that we will receive from them, we will try to marry it with our own military analysts' projections, the projections of our own experts in the area.

Mr. WHITTEN. A shotgun wedding?

General CARROLL. No, sir.

Mr. WHITTEN. Since you were going to attempt to marry them, I wondered how much force you would use.

Mr. LIPSCOMB. On this contract for long-range-threat projection, the information which the committee has is that the contractor will be a commercial bidder.

General CARROLL. Yes, sir.

Mr. LIPSCOMB. From that statement, I assume that you are going to call upon one of the groups that do this kind of work.

General CARROLL. Yes, sir; I would assume so.

Mr. LIPSCOMB. You said you did not have anybody in mind.

General CARROLL. I don't.

Mr. LIPSCOMB. There are many who have this kind of capability?

General CARROLL. Yes, sir.

CONTRACTORS WITH CAPABILITIES FOR LONG-RANGE THREAT ANALYSIS

Mr. LIPSCOMB. Could you name some of those that have this kind of capability?

General CARROLL. Offhand, ones that come to mind to me would be the Institute for Defense Analysis, the Rand Corp., MIT, various universities.

Mr. LIPSCOMB. What gives them this capability now? What makes you think they can project 20 years from now and have this capability at this time? Or are they going to go out and form the capability?

General CARROLL. If they do not have the capability, of course, they should not succeed in bidding on the contract. If our own analysis of their capability indicated that to be the case, we would not award the contract to them.

I might mention, sir, that contracts of this nature have been accomplished in considerable volume over the past several years, in response to service requirements that were contracted for, to a number of commercial inputters. The areas are there. What is happening now is not something which is being undertaken de novo by the Defense Intelligence Agency. It is a question of DIA assuming the responsibility for making these long-range-threat projections, not by contracting it out to somebody to do it for us as has been the case in the past but, rather, by seeking such input assistance as will enable us to do it. Much, much more than the \$700,000 that we are seeking here has been spent annually in this area in the past.

USE OF PREVIOUSLY DEVELOPED DATA

Mr. LIPSCOMB. I think that is part of what is bothering us. We know for a fact that this kind of estimation has been going on. That is how we have been developing a 5-year program. The thing that is bothering me is that we know this has been going on. We do not know at this point whether it has been for 12 years or 20 years or what it has been.

Now you come in with a new program under your supervision or DIA's supervision. What is happening to the other parts? Do you anticipate or do you feel that they are all being canceled now?

General CARROLL. I feel any of those that are violative of the assignment which has been made to us by the Secretary of Defense and the Joint Chiefs of Staff certainly should be canceled, and they should not be supported in the budgetary submissions of the services.

Mr. LIPSCOMB. From what I understand, you have started this program already. You have put some people on board.

General CARROLL. That is correct.

Mr. LIPSCOMB. Would the first thing that those people do be to find out what has been going on in the field, what resources are available; in other words, find out where they stood?

General CARROLL. They already have in relationship—

Mr. LIPSCOMB. Have they found that out?

General CARROLL. To a certain background extent; yes, sir.

Mr. LIPSCOMB. How long have these people been on board?

General CARROLL. We have been bringing them on over the past year, sir, a total of 10.

Mr. LIPSCOMB. If they have had the time to look and see what has been going on in this period for the past a number of years, they would know immediately what contracts are let and how they are getting the input now. They should.

General CARROLL. We have had a complete survey made. Many of these things were not monitored within the framework of the intelligence organizational structure. They would be R. & D. contracts, for example, let by elements of the services.

DROPPING OF ONGOING SERVICE PROGRAMS

Mr. LIPSCOMB. Now that you are starting a new program in your shop, what recommendations are there for dropping ongoing programs?

General CARROLL. They should all be dropped, sir.

Mr. LIPSCOMB. This is what you should be telling us today, that you are picking up a new program here and you are dropping these other programs in Army, Navy, and Air Force, and in systems analysis under the Department of Defense which are going on right at this moment. They are doing this, too; are they not?

General CARROLL. This long-range threat projection?

Mr. LIPSCOMB. Yes, sir.

General CARROLL. What they would be doing would be on the basis of various inputs which are made by us, and then assuming whatever follow-on—

Mr. LIPSCOMB. You must have found out by this time that systems analysis has been projecting the threat, too.

General CARROLL. I know they have. Much of what they have been doing has been on the basis of inputs which they have received from us.

Mr. LIPSCOMB. What you seem to have here is yet another layer, a new program, it may be a valid program, but it appears to the committee you are just heaping one job on another. The committee does not intend to permit that any longer. You have not in any way discounted our fears.

General CARROLL. When you say we are heaping one job on another, it was because of a recognition of the fact that this was a job of considerable importance to be done in the Department of Defense, and that several people have been undertaking to do it, that the decision was made to centralize this long-range threat projection aspect of the

overall program in DIA where we will be responsible to the Army, the Navy, and the Air Force, who will lay their requirements on us and thereafter, then, not undertake to do the same thing on their own?

Mr. LIPSCOMB. We have been sitting here listening to operation and maintenance for all the military services. We have been listening to contracts that have been made outside with consultants for studies. I would be hard pressed to tell you of any studies that have been canceled as a result of your taking on any responsibility.

General CARROLL. We have not undertaken to perform that responsibility yet, sir, because I do not have the resources to the extent required.

Mr. LIPSCOMB. We are talking about fiscal year 1970.

General CARROLL. That is right.

Mr. LIPSCOMB. So you have not yet taken it on, and they have not yet canceled any of their 1970 requests, as far as I know.

General CARROLL. For fiscal year 1970, they should not have anything in their budget that pertains to this particular matter, sir, since the responsibility was assigned to DIA, and the military department and other concerned were advised to that effect.

NEED FOR CENTRALIZATION OF RESPONSIBILITY

Mr. LIPSCOMB. After we get through with this record, I think if you are sincere about this study which has been laid on you and if it has not been taken away from you by this memorandum of the Secretary today—

General CARROLL. It has not.

Mr. LIPSCOMB (continuing). We should have some assurance to bringing this type of long-range projections together under one head, in one spot, and not have it spread all over the Defense Department. Can you put that together?

General CARROLL. Yes, sir. This was the purpose.

Mr. LIPSCOMB. Maybe you will show a savings.

General CARROLL. It was the purpose of the directive in the first place, sir, not only to make it responsive to the total needs of the Army, Navy, and Air Force, rather than having them severally undertaking to satisfy themselves, but also to eliminate the duplication that had been involved in this kind of endeavor.

Mr. LIPSCOMB. Even though I personally do not understand why it is being put in the Defense Intelligence Agency, I still recognize the need of such information and that it should not be spread all over the lot, if that is the case.

General CARROLL. The instructions of the Secretary of Defense and the Joint Chiefs of Staff are being ignored if it is spread all over the lot.

AIR FORCE CONTRACTS OVERLAPPING DIA RESPONSIBILITY

Mr. LIPSCOMB. While I have the time, what would you know or what would be your opinion of the contracts that are being let by the Air Force—

Why isn't this a DIA responsibility?

General CARROLL. Not being personally familiar with those particular contracts, sir, I assume they relate to the scientific and tech-

nical intelligence responsibilities of the Foreign Technology Division of the U.S. Air Force. This has to do with the production of scientific and technical intelligence.

I would like to make very clear that DIA does not have that direct responsibility. At the time DIA came into being and intelligence production responsibilities were assigned to it by the Secretary of Defense, he reserved for further study a decision as to whether or not the production of scientific and technical intelligence pertaining to capabilities and limitations of enemy foreign weapons systems and associated areas of endeavor in foreign countries, whether that would come to DIA or stay in the services. His decision was to leave it in the services. So, the Army, Navy, and Air Force are still the primary producers of scientific and technical intelligence in the Department of Defense. They function, however, sir, under my managerial guidance, in turn, under direction of the Secretary of Defense.

Mr. LIPSCOMB. We have had under other direction military attachés, whose responsibility it is to observe military capabilities of the countries in which they are stationed. We have other operations by other agencies. This information has flowed into DIA, I would think.

General CARROLL. That is correct.

Mr. LIPSCOMB. Under this contract ———. For the life of me, I do not see why we have to have a contract outside when this is information which, by all good reason, should flow through out in-house capability in all of our intelligence agencies, covert and overt. I do not understand it.

General CARROLL. I am not too sure what the provisions of that contract are, but the Foreign Technology Division has been tasked to produce certain scientific and technical intelligence pertaining to that subject matter, and the Air Force apparently have determined that they need external assistance in that respect.

Unless you have already obtained it from the Air Force, sir, I can provide you data not only in relationship to these particular contracts, but the particular tasks which they are designed to support.

Mr. LIPSCOMB. What I would like to see done is that these contracts be evaluated and see whether they are superfluous to the needs of the Air Force or whether the Air Force has not had the opportunity or knowledge whether to solicit the information from you or other intelligence agencies.

General CARROLL. I would not have the data. Actually, this undoubtedly is related to a task which I have levied on the Foreign Technology Division of the Air Force to produce scientific and technical intelligence in response to either the Air Force's requirements or D.D.R. & E.'s requirements or national requirements.

In addition to that, sir; at the time the consolidated intelligence program is put together, the resources required by the Foreign Technology Division would have been reviewed by my office as well as by the Office of the Secretary of Defense review group and, ultimately, by the Secretary of Defense. These external assistance contracts as well as the in-house resources required in FTD would all have been evaluated in relationship to (1) the mission being performed, and (2) adequacy or excessiveness as regards the resource being solicited.

QUESTIONABLE NEED FOR OUTSIDE CONTRACTORS

Mr. LIPSCOMB. We may be talking a different language, but it is very hard for me to understand, with the vast amount of resources that we have in the intelligence community, why we are hiring ——— and others to do this work for us, outsiders whose expertise I should think, in my view, would be limited compared to the resources available to you. I just do not understand it.

General CARROLL. I think it has been generally accepted, at any rate, sir, that specialty areas in industry and in universities and in the scientific field can make major contributions in areas in which they are experts, to the Department of Defense.

Mr. LIPSCOMB. To gather information in ——— with the U.S. Army, Air Force, and Navy over there, you have to hire ——— to do it for you?

General CARROLL. Are you talking about the ——— contract?

Mr. LIPSCOMB. I am talking about the whole ball of wax.

General CARROLL. We do not hire them to go over there to collect it at all. This is information which we get because they already have it in conjunction with the performance of their own commercial mission.

CONTRACTOR PREPARED REPORT

Mr. MINSHALL. Who prepared this report which has been handed to us earlier, called National Intelligence Survey, ———.

General CARROLL. The basic ———

Mr. MINSHALL. Who prepared this particular report?

General CARROLL. This is one of the chapters of the National Intelligence Survey which is put out by CIA as part of an overall community effort. Within this community framework, DIA is charged with producing the input to various chapters of the National Intelligence Survey.

Mr. MINSHALL. My question is this: Who prepared this particular report, not the background history of it. Who prepared this?

General CARROLL. ——— prepared ———

Mr. MINSHALL. Did ——— prepare this report? Will you answer "yes" or "no"?

General CARROLL. The answer is, ——— prepared the draft of that report; and then this draft, after review by DIA and by CIA, is put out in this form.

Mr. MINSHALL. ——— is the one that got the basic material for this?

General CARROLL. That is correct.

Mr. MINSHALL. Do you realize where the basic material came from? I would like to read this into the record, if I may, please.

COMMENTS ON PRINCIPAL SOURCES

Information contained in this section is considered reliable and current as of early 1968. Some of the basic data are from a U.S. intelligence study dated March 1964. More recent additional data are from official U.S. Government documents and open sources. The principal source documents include reports originated by units of the U.S. Army and within the various attaché offices. Open sources include the publications ———, and professional and trade papers.

Why couldn't you have done this in-house at the very outset?

General CARROLL. In that particular one, we probably could have, sir.

Mr. MINSHALL. Why didn't you?

General CARROLL. Because this was part of the contract which has proven to be very beneficial.

Mr. MINSHALL. Why was it part of a contract?

General CARROLL. This is an updating.

Mr. MINSHALL. The Government got charged for this; did they not?

General CARROLL. It was produced within the framework of the——

Mr. MINSHALL. Wait a second. My question is——

General CARROLL. Yes; the Government was charged for it.

Mr. MINSHALL. Why did you include this in it when you had information readily available from your own sources? I do not understand it. Mr. Lipscomb has brought this out. It defies me why you would waste the taxpayers' money hiring —— to get together a lot of information when I could have gotten most of it here myself.

General CARROLL. Much of what was produced for us by —— comes from their principal input. In addition to that, they do the work of pulling this together across the board.

Mr. MINSHALL. General, the heck with that input-output talk of yours. This contract was paid for by the taxpayers. You ordered it. I see no reason why you should have. It is ridiculous.

That is all I have.

PERFORMANCE OF LONG-RANGE THREAT PROJECTION

Mr. WHITTEN. Referring to your statement where you said, regarding the long-range threat projections project, that you will require "an external assistance contract to correlate political, economic, psychological, social, and institutional factors ——," again, would you briefly explain how the contractor would carry this broad responsibility? We went into how you selected the people, where you would find them. How would he carry out this responsibility?

General CARROLL. There are —— specific contracts which we plan to obtain in fiscal year 1970 at a cost of \$700,000, to give this new organization the capability of obtaining expert assistance. For example, we must be able to draw on the growing body of political, economic, and social scientists in the United States who have devoted their full time over many years to forecasting world trends. We also need to learn from the mathematicians, operational analysts, and systems analysts in this country who are leaders in developing the very latest analytical techniques and methodologies. The \$700,000 in our present planning would break out as follows:

A planned expenditure of \$275,000 for conflict environment studies, which will include a projection of the future of —— and a number of other input studies on the —— as a potential source of warfare situations.

The sum of \$225,000 is planned for economic studies, including weapons systems and force structure costing analyses for the —— . An economic restraint study of factors affecting military capability growth over future time frames in these —— countries.

Finally, there is planned \$200,000 for five methodological contracts which will include adapting long-range threat projections _____.

Mr. WHITTEN. General, you read from your prepared statement there. However, I will repeat my question: How would the contractor carry out this broad responsibility?

General CARROLL. The only other way I can answer the question is to state that he will apply the expertise which we feel he has when we give him the contract, to the performance of the task which we levy upon him.

Specifically how he would go about it, I do not know. If we did to fullness of detail, we would not need his assistance.

INFORMATION PROVIDED TO THE CONTRACTOR

Mr. WHITTEN. Would you supply all the intelligence information to the contractor, or will he also have collection responsibilities?

General CARROLL. He will not have collection responsibilities. He may have to do research of available material in open literature, and we certainly will supply certain supplementary data to him.

Mr. WHITTEN. You tell him whether your embassy has been stoned and tell him what the local newspapers have said. He will use his expertise. These social scientists, economists, political scientists and various and sundry other folks, are completely honest, but they study one line of authority and become convinced or sometimes they study another line of authority and become convinced of its merits.

OBJECTIVENESS OF CONTRACT PERSONNEL

If you have a big contract, you are going to follow one line of authority or another. George F. Kennan had some very decided views. I doubt if any man had more standing with folks who agreed with him than he did. I happened to agree with him very much. Offhand, I do not think of another name at the moment, but you could find outstanding people who take another view in the same general area.

When you hire these men with a fixed position, have you not written your own report? I asked you earlier how would you get somebody that you felt would be objective? You have a contractor. You would have to let him select the people, would you not?

General CARROLL. Yes, sir.

Mr. WHITTEN. When he selected them, he could select up or down or in or out. He could select antiwar, prowar, peace. When you get into that area and you are dealing with _____ you are not going to run the corporate structure of _____ and you are not going to run its internal affairs. Aren't you putting your money and the Nation in the hands of contractors where you had nothing to do with the selection of the personnel?

General CARROLL. We have something to do with the selection of personnel to the extent that security clearances will be required to permit them to work on many facets of this program. On the other hand, there isn't any doubt, Mr. Whitten, that when we seek to receive help from experts in various fields, if we happen to select one who is

biased, albeit an expert, we have problems in endeavoring to analyze the objectivity of the contribution he makes back to us.

Mr. WHITTEN. Bias is just somebody disagreeing with you. If he agrees with you, he is just a very smart man. Isn't that right?

General CARROLL. If that is the base, biases are more difficult to ascertain.

Mr. WHITTEN. Would you not say that is a fair description of bias? Who is going to judge whether he is biased or not?

General CARROLL. I think everything is relative when one is trying to determine what constitutes bias. It may be a question of philosophy. All I can say is that we are embarked here upon trying to project 20 years into the future in a reasonably tangible and meaningful form, and it is a very difficult task. I do not think it has ever been well done anyplace. DIA has been given the task of doing it. I have people who have a lot of experience in this general area. We feel that with some external assistance, we will be able to do it better than it has been attempted to be done in the past.

COST OF EXTERNAL ASSISTANCE CONTRACTS BY YEAR

Mr. WHITTEN. I would like you to provide for the record what your costs on contracts have been since your Agency has been in existence, by years; including the contracts that have been ended and the contracts that have been extended.

General CARROLL. Can do, sir. I understand.
(The information follows:)

The cost of external assistance contracts entered into by DIA, covering both the agreements with other Government agencies in which costs have increased significantly over the years due to Federal pay act legislation, and for contracts with commercial firms is as follows:

(In thousands of dollars)

Fiscal year	O. & M.	R.D.T. & E.	Total
1963.....	\$4,425	0	\$4,425
1964.....	5,198	0	5,198
1965.....	6,211	\$2,300	8,511
1966.....	5,215	1,856	7,071
1967.....	5,739	1,424	7,163
1968.....	5,972	1,210	7,182
1969.....	5,702	1,307	7,009
Total.....	38,462	8,097	46,559

Note: This includes all external assistance contractual effort, the costs of contracts that have been ended, and those extended.

1970 CONTRACTS

Mr. ANDREWS. Mr. Chairman, I would like to see at this point in the record, without naming them, just the total number of contracts that you have planned for 1970 in this budget request, and the total dollar amount involved for contracts in 1970.

General CARROLL. Yes, sir.

(The information follows:)

The total number of external assistance contracts and the total amount requested for this purpose in fiscal year 1970 is as follows:

	Number	Amount
Operation and maintenance.....	30	\$6,600,000
Research, development, test, and evaluation.....	11	3,600,000
Total.....	41	10,200,000

Mr. ANDREWS. Could you tell us offhand, out of your total budget request, which is roughly \$74 million—

General CARROLL. That is correct, sir.

Mr. ANDREWS (continuing). How much is for contracts with outsiders?

General CARROLL. External assistance contracts in O. & M. amount to \$6.6 million; and in R.D.T. & E., \$3.6 million.

Mr. ANDREWS. That is the total amount?

General CARROLL. That is correct, sir.

Mr. ANDREWS. That is \$10.2 million.

General CARROLL. That is correct.

Mr. ANDREWS. Out of your \$74 million.

General CARROLL. That is correct.

Mr. ANDREWS. It appears to me the way this thing is growing that your outside contractors will get as big, if not bigger, than you in the next few years.

General CARROLL. I could run through a list of these.

Mr. ANDREWS. That is about one-seventh of your budget?

General CARROLL. Yes, sir; of the total.

CONTRACTS WITH LIBRARY OF CONGRESS

Mr. ELLIOTT. One contract accounts for \$3.3 million, though.

Mr. ANDREWS. Who is that with?

Mr. ELLIOTT. That is with the Library of Congress.

Mr. ANDREWS. What do they do for you?

General CARROLL. We have had a long-term contract with the Library of Congress which enables us to derive from them the benefit of the very extensive Library capabilities and open source materials that are available to them. Under special tasking which is revised each year by DIA, they exploit the very extensive holdings of open materials which they have, including foreign language materials, in combination with certain classified materials which we supply to them, and they produce various abstracts and studies as called for in their work statements.

This is fundamentally in support of our military capabilities and targeting program. This, too, has been a long-continuing contract.

Mr. ANDREWS. I am familiar with that. I serve on the subcommittee which handles the appropriation of the Library of Congress. Is it true that the Air Force has a contract with the Library of Congress for \$3.250 million?

General CARROLL. The Foreign Technology Division of the Systems Command of the U.S. Air Force does have a contract with the Library

of Congress. That is in support of the scientific and technical intelligence production responsibilities of that activity.

Mr. ANDREWS. Does the Army have a contract with them?

General CARROLL. I do not believe so; no, sir.

Mr. ANDREWS. The Marines?

General CARROLL. None that I know of.

Mr. ANDREWS. The Navy?

General CARROLL. I know of none. The Library of Congress has been a very beneficial contractor to the Air Force and to the DIA.

Mr. ANDREWS. I would rather let the Library of Congress get your contract money than these outside contractors.

General CARROLL. Most of our long-standing contracts, with the exception of the _____ contract _____ which I mentioned, are with other governmental elements such as the Department of the Interior, the Department of Commerce, Army Map Service, and so forth.

Mr. ANDREWS. That is all, Mr. Chairman.

COLLECTION VERSUS PRODUCTION

Mr. WHITTEN. I note in one of these contracts you call for physical vulnerability studies, geological survey exploration, and an exploration of soil conservation studies. Would these contracts infer that you are in the collection business rather than in the production of finished intelligence?

General CARROLL. As to the first one that you mentioned, sir, the physical vulnerability studies, is not a question of collection of intelligence information. It is a question of analysis of information and data available through the specialty areas of activity that are mentioned here, to enable us to make better projections as to what the hardness of military targets might be.

You will note we have \$100,000 this year in connection with radiation vulnerability—missile vulnerability to radiation phenomena. A good deal of this will be research by experts in that field with inputs to us that will enable my people then to make further utilization of that data in estimating what the degree of hardness or vulnerability of a particular weapons system might be.

KNOWLEDGE OF INTELLIGENCE IN OTHER SERVICES

Mr. WHITTEN. It appears from time to time one agency does not know what another agency in the same general area is doing or you are busy trying to find out what the other is doing, or else you are off on a 20-year projection, a study about underwater warfare, submarines, and so forth. We have heard the Navy testify along that line in support of requests for funds every year. It is hard to know what you could do in connection with underseas warfare that the Navy is not doing. It would be equally surprising if you told me you knew what they were doing.

General CARROLL. What the Navy is doing?

Mr. WHITTEN. Yes.

General CARROLL. I certainly do know in the intelligence area.

Mr. WHITTEN. How about research and development?

General CARROLL. No, sir.

Mr. WHITTEN. You do not know?

General CARROLL. Only if they are engaged in a research and development program pertaining to intelligence, the staffing of which would be referred to me for support or comment. Or I may have been involved in the generation of a requirement for that system in the first place. I do not review the Navy's whole R. & D. requirements.

NEED TO KEEP ABREAST OF SERVICEWIDE DEVELOPMENT

Mr. WHITTEN. You are going to project what will happen in 20 years, and you limit your knowledge of research and development to the field of intelligence.

I do not want the man planning for the country 20 years from now to limit himself, insofar as knowing what the Army, Navy, and Air Force are doing, to those things they are doing in the general area of intelligence gathering. We had better get somebody who is in better contact with what the services are doing and what they are prepared to do, hadn't we, or would you contract that out with the Navy?

General CARROLL. You are talking about intelligence gathering, sir?

Mr. WHITTEN. No; I asked you if you knew what the Navy was doing in research and development in connection with deepwater and underwater warfare, and you said you did not; that you are limited to areas where the research was in intelligence. So I added this question: If you came to something like this in your 20-year projection, you would give that contract out to the Navy?

General CARROLL. In our 20-year projection, we are endeavoring to describe what the Soviets might be doing in that area, not what the U.S. Navy is doing.

Mr. WHITTEN. The Soviets to a great degree, would you not agree, would be in turn giving thought to what the United States was doing, and if you did not know what the United States was doing, you would be in poor shape to analyze what the Soviet Union might or might not be doing?

General CARROLL. It will be very necessary to bring considerable thought of that nature to bear, because—

Mr. WHITTEN. You may have made a case for the Joint Chiefs of Staff handling this rather than you.

General CARROLL. I beg you pardon?

Mr. WHITTEN. Haven't you made a case for this being an area for the Joint Chiefs of Staff, who know what the respective services are doing, rather than for you to contract it out to somebody other than the three services?

General CARROLL. We are not contracting out to determine what the research and development programs are now in the Army, Navy, and Air Force.

Mr. WHITTEN. Were we dependent on contractors in connection with the *Pueblo* or the U-2 or the *Liberty* or the Tet offensive?

General CARROLL. No, sir.

INTELLIGENCE EXPERIMENTATION RESEARCH FACILITY

Mr. WHITTEN. With regard to your R.D.T. & E. funds, if all your funds are contracted out, where do you get the resources to operate the Intelligence Experimentation Research Facility?

General CARROLL. There is one element of that we have not yet established in DIA, but we hope to do so in 1970, which would call for some people and experimental funds.

Mr. WHITTEN. You do have a research facility.

General CARROLL. No, sir, we have not yet established it.

Mr. WHITTEN. Why is there need for such a facility, in view of the fact that we have so many research facilities in existence in the Department of Defense at the present time?

General CARROLL. This is one specifically designed to engage in system development under real time conditions. We have no research facilities which are engaged in this kind of activity.

Mr. WHITTEN. Describe the activity again. I did not follow you.

General CARROLL. We have a number of problems that we are confronted with today, and we are endeavoring to solve those problems while at the same time trying to maintain a currency in response to the users whom we serve. The purpose of this experiment—

Mr. WHITTEN. Read my question, Mr. Reporter.

(Question read.)

General CARROLL. What I had started to say, sir—

Mr. WHITTEN. I know. That is what I stopped you from doing. General, I stopped you from saying that. I want to go back to my question.

General CARROLL. I understand, sir.

Mr. WHITTEN. Will you direct yourself to my question? Then you can say what you like.

General CARROLL. In this experimental research laboratory, we intend to operate under real time conditions on major intelligence problems that we are confronted with today, but being analyzed for other than immediate use purposes.

To some extent, while the research and development and test are going on, it will be paralleling what is being done in real life by our day-in and day-out analysts and intelligence producers. It is an effort to tackle in a more considered and experimental manner the real problems that we are confronted with today and are unable to address to the extent that we should because the primacy of attention has to be given to getting the job done to meet a current requirement.

Mr. WHITTEN. General, you used a whole lot of language, and you lost me somewhere there. I repeat what I said: You are planning to set up a research facility, and that research facility, insofar as we can tell from your statement, is to do research in those areas that might have to do with the future as against the present.

General CARROLL. No, sir; it has to do with trying to help us solve present problems and to do it in a real world rather than a theoretical environment. We are wrestling with these problems now, but our attention cannot be as fully extensive as we would like it to be because we have to try to solve the problem and at the same time do the job.

POSSIBLE DUPLICATION OF RESEARCH EFFORT

Mr. WHITTEN. What is the Central Intelligence Agency doing in this area.

General CARROLL. They are engaged in certain research which is somewhat comparable. I do know—

Mr. WHITTEN. How is it comparable? Wherein does it coincide and wherein does it differ?

General CARROLL. Because it is being tailored—I am not too familiar with the actual CIA effort in this respect. I know they have one which is generally related. I know at the time we developed this one, we initially thought in terms of doing both of ours at the same time. It was decided, however, that since each of us was addressing separate problems of our own, in an experimental manner, it would be preferable in the initial stages to coordinate but go our separate ways.

Mr. WHITTEN. Including the construction of a facility.

General CARROLL. We are referring to it as a facility. That is the name. It will not be a very elaborate structural facility. They will need computer support as we get going.

Mr. WHITTEN. What is the Navy doing in this area?

General CARROLL. Nothing that I know of, sir.

Mr. WHITTEN. What about the Air Force?

General CARROLL. Nothing.

Mr. WHITTEN. How about NSA and the Atomic Energy Commission?

General CARROLL. I doubt that they would be doing anything in the specific area we are addressing, because we are talking fundamentally in terms of the intelligence production problems which DIA has.

Mr. WHITTEN. The National Security Agency recognizes the seriousness of this, but you had to come along and pick up the chips. Why hasn't National Security Agency done something in this area?

General CARROLL. We are doing it in relationship to a different kind of problem. Maybe NSA is doing something.

Mr. WHITTEN. General, I cannot follow you when you say you do not know what they are doing. Maybe theirs is a different approach to the problem which you could say if you knew that they were doing, but if you do not know what they are doing, you cannot say the problem is different. You would not know anything about it. We would have to set up another intelligence agency to find out what the similarity might be or the duplication might be between you and these others.

NEED FOR RESEARCH FACILITY

General CARROLL. Since this is a research and development activity, Mr. Whitten, I think I should say it is not something that is just generated out of the thin blue sky in DIA. This stems from a multi-month study which was participated in by D.D.R. & E., by several outside scientific experts, who did research on what the situation was in Government and out of Government, and recommended to me that we establish this kind of facility because nothing comparable to it was being done to an adequate extent elsewhere.

Mr. WHITTEN. You are bolstering your own testimony a little bit. I asked you the question after you said you did not know. I am presuming from your present statement that a study was made and they reported to you, and that you did not read the part which said what others were doing. You just read the part about your own activity and you presented it here. Or have you just forgotten what the other part was?

General CARROLL. The study group that I mentioned was chaired by D.D.R. & E., not by me, Mr. Whitten.

Mr. ANDREWS. What is D.D.R. & E.?

General CARROLL. The Director of Defense Research and Engineering. It was in recognition of the fact that certain research and development should be undertaken in this hitherto unexplored area and, after deliberations as to ways and means of best going about it, it was decided that the Department of Defense should undertake such an endeavor and that it would be preferable to have it conducted within DIA rather than in D.D.R. & E. or in some contractor facility responsive to D.D.R. & E. because of an appreciation of the fact that to make it meaningful it should be done in as real time practical environment as could be done. The only place to have that done was internal to an intelligence organization.

CIVILIAN EMPLOYEES

Mr. WHITTEN. General, we turn now, if agreeable, to "Civilian employees."

PERMANENT POSITIONS

On page 31 of your budget justification, you are showing that on June 30, 1969, you will have 3,533 permanent positions. On this same date you are showing that your yearend employment will also be 3,533. How is it possible that you will have every position filled at the end of this year whereas in the hearings last year it was brought out that you had 250 vacancies? What changes have occurred during the past year that have caused you to totally eliminate all vacant positions?

General CARROLL. Onboard, assigned strengths provided to the committee in April 1968 reflected the employment status as of that date. As indicated last year, DIA employs a large number of personnel from high school and college graduates throughout the Nation. These young men and women are generally hired as soon after their graduation as circumstances permit, else this prime source of employment is lost by their acceptance of non-Federal employment. DIA's end-year fiscal year 1968 civilian employment was at 99.3 percent of authorized strength on June 30, 1968. End fiscal year 1967 data reflects actual civilian employment at 99.6 percent of authorized strength. Based on our recruitment effort this year, we anticipate much the same levels as heretofore, with substantially full employment within authorized civilian allowances.

Mr. WHITTEN. For the record what is your current employment, and what is your current authorized strength?

(The information follows:)

Civilian employment, Apr. 30, 1969.....	3,448
Currently authorized civilian strength, end fiscal year 1969.....	3,533

DIA ASSUMPTION OF CONTRACTOR PERFORMED FUNCTION

Mr. WHITTEN. In the hearings last year, it was stated that DIA had four projects that were being done by contractor personnel. The intention at that time was that DIA should take over these contractor-per-

formed functions and, through the addition of 51 civilian employees, add an in-house capacity to perform these functions. It was stated in the hearings that DIA had performed a cost-effectiveness study and that you had found that you could do it cheaper in-house. Since you actually had a decrease in employment in fiscal year 1969, have you been able to take over any of these functions, or are they still being performed by contractor personnel?

General CARROLL. One. Cost analyses were made in April 1967 of four external assistance programs. The analyses were made under the provisions of DOD instruction 4100.33, dated July 22, 1966, subject: Commercial or industrial activities—Operation of. Fifty-one additional civilian manpower spaces were requested for fiscal year 1969 to replace these four contracts at an estimated annual budget savings of \$176,000. The following programs were affected:

- (a) Automation of coasts and landing beaches data; 6 man-years.
- (b) Photographic data base maintenance and automation support; 19 man-years.
- (c) Automation of biographics data; 20 man-years.
- (d) Reproduction servicing for cartographic activity; 6 man-years.

Two. All four of the above contracts were terminated by the end of fiscal year 1968 and the functions are not now being performed by contractor personnel.

Three. Because of manpower and budgetary constraints and internal intelligence production priorities only 17 of the 51 manpower requirements have been applied internally; Two to automation of coasts and landing beaches data; nine to photographic data base maintenance and automation support; and six to reproduction servicing. Since external contracts had been terminated it was considered essential that work continue in the above areas to the extent indicated. Other programs have been deferred or substantially reduced in order to function within the authorized manpower ceilings. In the instance of automation of biographics data, no additional internal manpower has been applied with the result being that new automated biographics systems are not being developed at the rate desired. However, efforts are continuing to develop a DIA/CIA/NSA standard automated biographics reporting format.

DISCREPANCY IN YEAREND EMPLOYMENT

Mr. WHITTEN. For fiscal year 1970, you are showing that your year-end employment in permanent positions will be 3,550. However, your total number of authorized permanent positions will only be 3,526. How is it possible for you to have at June 30, 1970, 24 more employees in permanent positions than you have positions authorized?

General CARROLL. The question appears to stem from a possible mechanical omission in updating an exhibit to reflect the President's April 1969 adjustment to the initial budget submission for fiscal year 1970. DIA's fiscal year 1970 program was reduced by 24 civilian spaces, so that both the end-year authorized positions and the anticipated year-end employment were adjusted downward to 3,526. Appropriate adjustments were made to estimated fiscal year 1970 average employment and to funding levels.

DIA LAPSE RATES

Mr. WHITTEN. In the case of most Government agencies, including Defense agencies, the normal lapse rate is approximately 3 percent. In other words, at any one point in time you would normally expect to have approximately 97 percent of your total authorized positions filled. Does this 3-percent lapse factor also hold true for DIA?

General CARROLL. Based on employment levels achieved in prior years, the 3-percent normal lapse rate indicated to be experienced by other Government agencies does not hold true for DIA. Actual DIA experience has indicated a lapse of approximately 1 percent against positions filled at the beginning of each fiscal year. However, since total authorized civilian employment is planned to decrease in both fiscal years 1969 and 1970, the man-years reflected in the budget consider the time phasing of the reduction in onboard strength and the estimated man-year equivalent of terminal leave payments. For fiscal year 1970 the employment lapse rate is anticipated at approximately one-half percent. New positions are priced in the budget at a higher lapse rate—usually 50 percent.

INCREASE IN AVERAGE GRADE

Mr. WHITTEN. In fiscal year 1968, your average grade was 8.7. In fiscal year 1969, this moved to 9, and in 1970 you are projecting a further increase to 9.2. What is causing this steady increase in your average grade?

General CARROLL. The average GS grade considers the salary level of incumbent personnel at the end of fiscal year 1968 and position requirements as projected for the current and budget years. In this respect the cumulative effort of the following actions causes an increase in average grades:

(a) During the period cited, the Agency was and is engaged in the reduction of U.S. employment overseas associated with the balance-of-payments (Balpa) program and related transfer of local administrative support of defense attaché offices to the Department of State. Virtually all DIA spaces affected thereby are relatively low-graded clerical positions thus arithmetically increasing the average grade of residual employment.

(b) The Civil Service Commission certified four new supergrades, one GS-17 and three GS-16's, for information science technology and for the intelligence system development directorate, and approved promotions of two other existing supergrade positions.

(c) New civilian spaces programed for the long range threat projections project, imagery interpreters and computer specialists are in highly specialized skills requiring above "average" grade classifications.

INCREASED PERSONNEL COMPENSATION AND BENEFITS

Mr. WHITTEN. For fiscal year 1970, you are requesting \$38,597,000 for personnel compensation and benefits, an increase of \$900,000 over your planned level for fiscal year 1969. However, in fiscal year 1970, you are planning on 3,537 man-years, a decrease of 48 man-years from

your fiscal year 1969 level. A decrease of 48 man-years would be priced out at approximately \$500,000. Therefore, your gross increase in fiscal year 1970 would actually be approximately \$1.4 million if you were speaking in terms of the same number of man-years. Why is this large increase required?

General CARROLL. The amount of \$38,597,000 requested for civilian salaries and benefits in fiscal year 1970, represents an increase of \$616,000 over planned fiscal year 1969 obligations of \$37,981,000. This estimate considers the pay level of personnel expected to be onboard on July 1, 1969, including provision for full-year effect of periodic within-grade salary increases effected during fiscal year 1969; the full-year impact of salary increases effected in July 1968; and the higher-than-average grades for specialized talent required to support the new long-range threat projection project and other operations as previously discussed relative to increases projected in average U.S. civilian grades. Included in the net reduction in average employment are 53 man-years employment of foreign national personnel at an average salary of \$2,635 annually which will offset only a portion of the anticipated higher salary expenses of U.S. citizen employees.

MAN-YEAR REDUCTIONS

Mr. WHITTEN. On page 29 of your budget justification, you are showing, in the section entitled "Significant changes in the budget program," an increase in 1970 of \$997,000, for salaries and support of 41 additional employees—16 military and 25 civilian—associated with the Long-range Threat Projection Project. Since it was previously pointed out that your total man-years in 1970 decrease, where is the offsetting reduction for this increase reflected in your budget?

General CARROLL. The offsetting man-years are principally attributed to reduction of full-time employees associated with (1) BALPA—37 man-years, (2) reduction in defense attaché system administrative support transferred to State Department—21 man-years, (3) reduction in national intelligence survey production and other minor miscellaneous adjustments—4 man-years. This total reduction of 62 man-years is offset by additional 14 man-years civilian employment estimated for the long-range threat project resulting in a net man-year reduction of 48. The positions involved in the first two items were predominantly lower-grade U.S. civilian clerical personnel and foreign nationals whose salaries are significantly lower than the new positions associated with the long-range threat projection project.

CIVILIAN EMPLOYMENT

Mr. WHITTEN. What are the total increases in civilian personnel for 1970?

General CARROLL. Civilian personnel levels projected for the end of fiscal year 1970 reflect a net decrease of seven in the total number of permanent positions from end fiscal year 1969 strengths. It is now planned that the number of U.S.-citizen personnel will decrease by three and that foreign national employment will decrease by four during fiscal year 1970.

INCREASE IN OTHER OPERATING EXPENSES

Mr. WHITTEN. On page 31 of your budget justification, under the section entitled "Other operating expenses," you are requesting \$29,899,000 in fiscal year 1970, an increase of \$2,212,000 over your planned level for fiscal year 1969. Would you briefly summarize for the record why this \$2.2 million increase is required?

(The information follows:)

The required increase in other operating expenses of \$2,212,000 over the fiscal year 1969 level of \$27,687,000 is required for the following:

1. External contractual assistance and operating support for long-range threat projection as directed by the Secretary of Defense...	\$742,000
2. Upgrading of communications facilities and increased communications services.....	542,000
3. Increase in reimbursement to Department of State for administrative support furnished to the defense attaché offices.....	325,000
4. Full-year costs of ongoing projects which were undertaken during fiscal year 1969 and other miscellaneous adjustments.....	603,000

Total increase in other operating expenses in fiscal year 1970 over fiscal year 1969.....	2,212,000
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OVERSEAS DEPENDENTS EDUCATION PROGRAM

Mr. WHITTEN. You are no longer required to support the overseas dependents education program. What would the cost be if it were included in your budget request?

General CARROLL. During fiscal year 1970, DIA will have approximately 825 dependents of school age located at overseas activities who will be required to attend tuition-fee schooling. Based on the fiscal year 1970 average tuition-fee schooling cost for Department of Defense students, estimated at \$722 per student, approximately \$596,000 would be required to support the overseas dependent education program for DIA in fiscal year 1970.

FUNDING CHANGES EFFECTING 1970 PROGRAM

Mr. WHITTEN. Are there any other funding changes which have effect on your budget program for 1970?

General CARROLL. Other than the overseas dependents education program previously discussed, the only other funding change affecting the DIA budget program for fiscal year 1970 pertained to the lease of office space in the Washington, D.C., area by the General Services Administration (GSA) for occupancy by certain DIA components. This project entered into in fiscal year 1968 required reimbursement to GSA for partial year occupancy in amount of \$198,000. The first full year's rental in amount of \$241,000 was transferred to GSA in fiscal year 1969 as an appropriation adjustment. Rentals for subsequent years will be financed by the General Services Administration in accordance with section 13.5(1), BOB Circular A-11 and provision therefore is not included in the DIA fiscal year 1970 appropriation request.

PROCUREMENT

DEFENSE INTELLIGENCE RELAY CENTER

Mr. WHITTEN. You are requesting procurement funds to provide for limited upgrade of Defense Intelligence Relay Center, and DIA terminals of the special intelligence communications network. What type of limited upgrading will you be doing, and what equipment do you intend to purchase?

General CARROLL. The limited upgrade of the Defense Intelligence Relay Center (DIRC) and DIA terminals will provide for the following improvements to the existing facilities.

(a) Addition of a high-speed message relay capability to selected high-volume subscribers in the Pentagon by use of an automatic message distribution system (AMDS) thereby reducing message handling and improving delivery time.

(b) Modification of installed magnetic tape stations to significantly improve quality of reproduction and to increase life span of existing equipment.

(c) Installation of automatic communications circuit evaluation and sensory system (ACCESS) equipment to monitor all circuits for quality and signal distortion in order to provide immediate identification of circuit degradation or failure. This equipment will be installed at both the DIRC and the ANMCC at Fort Ritchie.

(d) Installation of error detection and correction (EDAC) equipment at the DIRC at the DIA terminal at Arlington Hall station to provide a reduction in errors in long-haul medium-speed and high-speed circuits.

(e) An increase in the air conditioning capacity at the DIRC to provide proper operating environment for the automatic equipment.

(f) Installation of medium-speed modems to provide improved communications between the DIRC and the other major relay centers in the Spintcomm network.

(g) Improve and expand the tech control equipment at the DIRC and at Fort Ritchie to enable the ANMCC to assume full control of the Spintcomm network in case of emergency.

Equipment to be procured for this upgrade is:

Two ACCESS sensor units.

Two sets of tech control equipment.

Seven modems.

Two air conditioning units (10-ton capacity).

Seven magnetic tape station heads.

Six EDAC units.

The high-speed message relay system will be leased.

Mr. WHITTEN. What new remote terminal devices do you anticipate purchasing during fiscal year 1970?

General CARROLL. The remote terminal devices planned for procurement in fiscal year 1970 consist of 39 teletypes and 11 high-speed printers with attendant spare parts.

Mr. WHITTEN. Mr. Lipscomb?

COMPUTER PROGRAMS

Mr. LIPSCOMB. General, did you implement any new computer programs during 1969?

General CARROLL. The DIA did not implement any new computer

programs during 1969. It did, however, continue to improve on-going programs and carry out planned experimental and test projects such as the analyst support and research system (ANSRS) and the community on-line intelligence system (COINS).

Mr. LIPSCOMB. Did you make any major improvements to computer programs during 1969?

General CARROLL. The DIA did make some major improvement to its computer programs in 1969 to keep abreast of increasing intelligence processing requirements. In the second quarter of fiscal year 1969 an IBM 360 model 65 computer was installed to augment the processing capability of an installed and Government-owned IBM 7094 model II computer. The latter system was being operated around the clock and could not provide the computer processing capability required during fiscal year 1969, nor could it provide a capability for crisis situations. The newly installed computer will provide the support that is required and is compatible with the Government-owned IBM 7094 computer.

Mr. LIPSCOMB. Were these systems reviewed and approved by the Assistant Secretary of Defense (Comptroller)?

General CARROLL. All computers proposed for installation within the Department of Defense are subject to the approval of the Assistant Secretary of Defense (Comptroller). Department of Defense Directive No. 4105.55, subject: "Selection and Acquisition of Automatic Data Processing Equipment (ADPE)," prescribes the policies for the selection and acquisition of ADPE within the Department of Defense. In consonance with this directive, the DIA submitted its proposal for the installation in fiscal year 1969 of an additional large-scale computing system. The DIA proposal was approved by the ASD (Comptroller) and an IBM 360 model 65 computer was installed in the second quarter of fiscal year 1969.

Mr. LIPSCOMB. Why were they installed or implemented, in view of this committee's report of last year?

General CARROLL. Every attempt is being made by the DIA to operate and maintain its automated intelligence systems and files as efficiently as possible. The main thrust in improving DIA's automated systems in fiscal year 1969 was in the on-line data storage and retrieval computing systems and the phased development of Projects ANSRS and COINS. The committee's report of last year addressed a backlog in intelligence information reports (IIR's) awaiting inputting to the DIA document storage and retrieval (minicard) system. During fiscal year 1969 DIA changes to this system included modification of its cameras to speed up the photographing of IIR's. Also, original copies of intelligence reports are now routed through the minicard system thereby expediting the inputting to the data base.

ASSESSMENT OF SOVIET WINTER GRAIN CROP

Mr. LIPSCOMB. I have a question I would like to ask which does not bear on your operation.

Recent press reports have indicated that the Soviet Union has suffered damage to its winter grain crop. What is the DIA analysis of the Soviet winter grain crop in terms of: (1) Percent drop in output of winter wheat this year over the past 3-year average; (2) specifically in the Kuban-Krasnodar territory?

What proportion of the area normally sown to grain has been badly damaged?

Are you able to answer this, or would you have to do it for the record?

General CARROLL. I would have to do it for the record, with your permission, sir.

Mr. LIPSCOMB. Is that the type information you would have?

General CARROLL. Some of it we would have. Some of it I might have to pull together from CIA, for example, because this is the kind of information that is fundamentally their responsibility to collect.

Mr. LIPSCOMB. Whose?

General CARROLL. Central Intelligence Agency.

Mr. LIPSCOMB. Do they not funnel in this type of information for your data bank?

General CARROLL. That is correct. They furnish information to me in accordance with our needs. They have much more data in this area than I normally acquire from them, because we do not need the data for our military support purposes to the same extent that they may need them.

I will have certain data available to me on this, and I can acquire supplementary data, if you desire it, in response to your question.

(The information follows:)

ASSESSMENT OF SOVIET WINTER GRAIN CROP

This year the Soviet Union's four critical winter crop areas are expected to suffer losses of one-third to one-half of the grain crop. The winter grain crop loss in other parts of the Soviet Union is tentatively expected to be about 10 percent, thereby bringing the prospects for a national winter grain loss to approximately 25 percent. In the Krasnodar Territory, the highest grain yield area in the Soviet Union, 2.2 million hectares of land under cultivation are devoted to grain, 1.5 million hectares of which are sown for wheat. Over the last 3-year period, an average of 4.5 million tons of winter wheat have been produced annually. The Krasnodar Territory is expected to produce only 3 million tons of wheat by the winter harvest, thereby suffering a prospective loss of 1.5 million tons of wheat, or one-third of the 3-year annual average. One-half million hectares, or one-third of the total Krasnodar Territory wheat area under cultivation has been damaged, but this area is being resown for the spring crop. During May and early June 1969, the spring sowing will take place in the Soviet Union. If the weather is good during this period and the 60-day period that follows, the Soviets should recoup some of their expected winter grain losses. In any case, reserve stocks of grain are such that the U.S.S.R. is in a relatively good position to offset estimated losses.

SIGNIFICANCE OF INFORMATION RECEIVED PRIOR TO EC-121 LOSS

Mr. LIPSCOMB. On operations again, through the briefings which this committee had had, it was indicated that one or more Mig ———. Would this be the kind of information that you would have on a real time basis?

General CARROLL. Yes, sir; we would have had that because the information would have been acquired, I believe, through real time collection means. We do know, I believe, it was ——— which was the source of the Mig's which attacked the EC-121.

Mr. LIPSCOMB. We know that now. I am interested in whether this is the type of information which you were passing along or would have received ahead of time. This happened the day before?

General CARROLL. It was a couple of days before, I believe, sir. The information would have been received by us. It would have been received by people out in the Pacific. It would have been received principally by NSA and by others here.

We did not accord a significance to that ——— with a view toward engaging in hostile action against the EC-121.

In addition to that, the pilots who were associated with those aircraft ———.

To this time, we ——— that shot down the EC-121.

Mr. LIPSCOMB. Would this have been the type of information that you would have handled in any special way?

General CARROLL. Only if we had attached a special significance to it. Otherwise, no, sir, because it would have been viewed as the ———.

In and of itself, it would have had no special significance.

Mr. LIPSCOMB. We are almost through now, but it would be interesting to follow through the operation that you have over there with your analysts and evaluators. You have no information specifically on how it was handled at this point?

General CARROLL. You mean that particular message?

Mr. LIPSCOMB. That message.

General CARROLL. No, sir, I do not.

Mr. LIPSCOMB. I should think you would know that one backward and forward.

General CARROLL. You are talking about the processing of it. I know there was no significance associated with it in relationship to the EC-121. Whether we can draw that kind of significance today is still questionable.

Mr. LIPSCOMB. Because of the importance of the message or more than one message, what would be the best way for a member of this committee to see how a message of that kind was handled?

General CARROLL. Come over and we will run you through the system.

Mr. LIPSCOMB. Do you have it in writing? Is there a time schedule?

General CARROLL. I can do that.

Mr. LIPSCOMB. You would have to do it for the record?

General CARROLL. Yes.

Mr. LIPSCOMB. I would be interested in seeing something like that, how it went through the evaluators.

General CARROLL. I will do that.

(Information provided the committee is classified.)

Mr. WHITTEN. Mr. Rhodes?

Mr. RHODES. No questions.

Mr. WHITTEN. General, we thank you for your presentation. The questions we raise are serious to us, and I know they are to you. We appreciate the detail in which you have dealt with them.

In the field of intelligence, there is always room for difference of opinion. Any organization which grows like Topsy, various parts at different times, has problems which were not foreseen when the organization was set up.

Mr. LIPSCOMB. Mr. Chairman, I want to say something more.

General, as you know, the committee was presented with this memorandum from the Secretary of Defense dated April 29, entitled "Management of DOD Intelligence Resources."

I believe the committee is encouraged that this memorandum was issued. I believe it fits in with the report of this committee in the past and some of the members' feelings. I sincerely hope that it receives every attention and cooperation, as I am sure it will.

General CARROLL. I am sure it will, sir.

Mr. LIPSCOMB. Thank you, Mr. Chairman.

Mr. WHITTEN. Thank you again, General, you and your associates, for your appearance.

The committee will convene again on Monday to begin consideration of procurement of equipment and missiles, Army.

MONDAY, JUNE 9, 1969

CHEMICAL AND BIOLOGICAL WARFARE

WITNESSES

DR. D. M. MacARTHUR, DEPUTY DIRECTOR (RESEARCH AND TECHNOLOGY), D.D.R. & E.

DR. B. HARRIS, DEPUTY ASSISTANT DIRECTOR (CHEMICAL TECHNOLOGY), D.D.R. & E.

DR. K. C. EMERSON, ACTING DEPUTY ASSISTANT SECRETARY OF THE ARMY (R. & D.)

BRIG. GEN. W. S. STONE, JR., DIRECTOR OF MATERIEL REQUIREMENTS, HEADQUARTERS, U.S. ARMY MATERIEL COMMAND

COL. J. J. OSICK, CHIEF, SYSTEMS AND REQUIREMENTS DIVISION, DIRECTORATE OF CBR AND NUCLEAR OPERATIONS, OFFICE OF THE ASSISTANT CHIEF OF STAFF FOR FORCE DEVELOPMENT

Mr. MAHON. We have before us this afternoon Dr. Donald M. MacArthur. Dr. MacArthur at this point we will place in the record your biographical sketch.

(The biographical sketch follows:)

Dr. Donald M. MacArthur was born in Detroit, Mich. in 1931. He received a B. Sc. (Honors) degree from St. Andrews University, Scotland, in 1954, and a Ph. D. in X-ray crystallography from Edinburgh University in 1957.

Afterward Dr. MacArthur taught for a year at the University of Connecticut. In 1958 he joined Melpar, a subsidiary of Westinghouse Air Brake. When he left he was manager of the Chemistry and Life Sciences Research Center. In this position he was responsible for the management and direction of a large number of defense and space programs representing a broad spectrum of disciplines from instrumentation engineering to biology. These programs represented applied research in the physical and life sciences, in addition to

development programs in space instrumentation, life support equipment, chemical and biological detection and warning equipment, and the development of large-scale atmospheric diffusion experiments.

In July 1966 he was designated Deputy Director (Research and Technology), Defense Research and Engineering in the Office of the Secretary of Defense.

As Deputy Director (Research and Technology) he is responsible for management of the DOD overall research and technology programs. The programs which he directs cover such diverse fields as rocket and missile propulsion, materials technology, medical and life sciences, social and behavioral sciences, environmental sciences, and chemical technology. He also oversees the 70 DOD in-house laboratories for development of policies, and improved management systems to insure that they are organized most effectively to meet current and future military weapons needs.

INTRODUCTORY REMARKS

Mr. MAHON. I take note of the fact that prior to the beginning of the formal hearing we have had an informal discussion about some of the matters which are to be covered in your presentation.

We are very much interested in all aspects of our defense program.

This subcommittee and the Congress has, over a period of years, supported the appropriation of funds for chemical and biological warfare. This has not been a program of great magnitude but it has been a program of considerable significance.

I think there is probably considerable misconception about the nature of the program.

I am not sure what portion of your testimony can appropriately be put in the record, or we would want to have in the record. We would not want to have in the record anything that would be damaging to the security of the United States, but otherwise we feel that the Congress and the American public are entitled to know all the basic facts.

Now, Dr. MacArthur, do you have a written statement or how do you propose to proceed?

Dr. MACARTHUR. Mr. Chairman, I do not have a prepared statement. The way I proposed to proceed was to pose the questions that seemed to be of most concern to Members of the Congress, the press, and to the public at large, and try to answer them.

Mr. MAHON. I think that is a good way to proceed.

Dr. MACARTHUR. I believe I know most of the facts about this area but when it comes to areas of national policy and the policy that has been espoused by certain individuals, I would want the privilege of reading specifically for the record what they have said.

In addition I have a discussion paper here, which discusses various issues in this area and I will be happy to distribute this. It is unclassified.

Some of the material I will speak about will be classified, but as I go along I will indicate the level of classification.

Mr. MAHON. You have been authorized by the Department of Defense to make the presentation.

Dr. MACARTHUR. Yes, Mr. Chairman.

Mr. SIKES. Who is the author of the paper on the U.S. position?

Dr. MACARTHUR. This position paper was prepared in the Office of the Secretary of Defense and already is in the record.

Mr. SIKES. But not in this committee's record.

Dr. MACARTHUR. It is in the Congressional Record of April 21, 1969, pages E3167-3169.

Mr. MAHON. You may insert the position paper in the record.
(The information follows:)

"U.S. POSITION WITH REGARD TO CHEMICAL AND BIOLOGICAL WARFARE

"In recent weeks there has been increased comment and conjecture regarding the involvement of the United States in chemical and biological (CB) warfare, and speculation concerning the policies and purposes governing such involvement.

"It is the policy of the United States to develop and maintain a defensive chemical-biological (CB) capability so that U.S. military forces could operate for some period of time in a toxic environment if necessary; to develop and maintain a limited offensive capability in order to deter all use of CB weapons by the threat of retaliation in kind; and to continue a program of research and development in this area to minimize the possibility of technological surprise. This policy on CB weapons is part of a broader strategy designed to provide the United States with several options for response against various forms of attack. Should their employment ever be necessary, the President would have to authorize their use. The United States does not have a policy that requires a single and invariable response to any particular threat. In the field of CB warfare, deterrence is the primary objective of the United States.

"CB weapons, in many situations, may be more effective than conventional (high explosive and projectile) weapons. Accordingly, it is believed wise to deter their use. If two approximately equally effective military forces were engaged in combat, and one side initiated a CW operation, it would gain a significant advantage even if the opposing side has protective equipment. This advantage cannot be neutralized with conventional weapons.

"As a matter of policy the United States will not be the first to use lethal chemical or biological weapons, but we are aware of the capabilities these weapons place in the hands of potential adversaries. For this reason it is important to carry on our R. & D. program in CB, not only to provide necessary equipment, such as detection and warning devices, but to define and quantify more fully the potential threat to our country from these weapons, and the hazards involved if they are ever used against the United States.

"The threat to the U.S. civil population from CB attack has been studied by the Department of Defense, and these analyses are periodically updated. It is clear that the threat of CB attack is less significant than that of nuclear attack. For this reason, more emphasis has been placed in civil defense on the nuclear threat.

"For logistic reasons, chemical agents do not appear to pose a major strategic threat against the United States. For example, it would

require many tons of nerve agent munitions to carry out an effective attack against a city of a few million people. This may appear inconsistent with the high toxicity of the nerve agents, but for many technical reasons, such as the difficulty in disseminating the agents in vapor or aerosol form, the dilution of the agent in the atmosphere, and their impingement on ground and vegetation, it is correct. For this reason, stockpiles of therapeutic materials for nerve agents are not maintained. Although the possibility of the employment of biological weapons against U.S. population centers cannot be ruled out entirely, it does not presently warrant the priority given to defense against the effects of nuclear weapons. Research on methods of detecting and warning, identifying, and defending against biological attack are continuing, as is review of the magnitude and nature of the threat.

"The Office of Civil Defense has developed an inexpensive but effective protective mask for civilian use, and a limited production run was made to test production quality. No large-scale production was undertaken because of the low estimate of the threat as described above. Should the threat to our population increase, this mask could be produced quite rapidly and, together with other necessary defensive measures, would afford protection against both chemical and biological attack. Filtration systems have been designed and tested, and these could be added to fallout shelters to afford collective protection for groups of people. In addition, many of the emergency plans developed by the Department of HEW for post-nuclear attack medical support would be applicable. The emergency packaged hospitals, for example, provide for expansion of hospital facilities by the equivalent of 2,500 hospitals of 200-bed size.

"Large stockpiles of medical supplies such as antibiotics and vaccines are not maintained against the possibility of biological attack. There is no specific antibiotic therapy available for most BW agents. As for vaccines, there are more than 100 possible BW agents, and production and administration of 100 vaccines to the U.S. population is not practical. There is medical reason to believe that such a program would be generally injurious to health in addition to requiring prohibitive expenditures.

"Chemical detection and warning instruments which could provide the components for a national alarm system have been developed, but it has not seemed wise to expend the large sums to deploy them to build such a system. As noted above, we believe that the threat of strategic chemical attack is not great. Warning against biological attack is much more difficult technologically. Recently there has been success with a prototype instrument which would provide some biological warning capability. R. & D. efforts in this area will be continued.

U. S. forces have the equipment required for protection against CB attack with the exception of a biological warning and detection device which is under development. Soldiers and sailors overseas have masks and protective clothing; and collective protection equipment for vans and communication centers is being developed and supplied.

"Statements have been made that there is enough nerve gas to kill 100 billion people. This kind of general statement is as "true" as saying that a test tube in a hospital laboratory can contain enough disease microorganisms to kill 100 billion people. Neither statement is true in any real sense, and there is no way in which the human race could be destroyed with nerve agents. The United States could not launch an immediate, massive retaliatory chemical or biological attack. The technical capability to do this has been developed, but it has not been judged necessary or desirable to procure and install the weapon systems for this purpose. The carefully controlled U.S. inventories are adequate for tactical response against enemy military forces, but not for strategic, nationwide attack.

"The total U.S. expenditure in the CB field, including smoke, flame and incendiary weapons, is \$350 million for fiscal year 1969. There is no procurement of lethal chemical agents or of biological agents. Details of expenditures are given in the table below.

CB expenditures, fiscal year 1969

Procurement :	<i>Million</i>
Smoke, flame and incendiary.....	\$139
Riot control munitions.....	81
Herbicides	5
Defensive equipment.....	15
Total	240
R.D.T. & E. :	
General and basic R. & D.....	9
Offensive R. & D.....	31
Defensive R. & D.....	30
Test and evaluation.....	20
Total	90
Operation and maintenance.....	20

"Of the \$90 million in R. & D., about \$26 million is spent on contracts, primarily with industry ; \$2 million is contracted to universities for basic defensive investigations. Every attempt is made to use discretion in selection of contractors, and not to ask institutions to do work which might be contrary to their policies and purposes. For example, some years ago the advice of the Smithsonian Institution was sought in identifying a suitable institute to perform an ecological and medical survey of the Central Pacific area. As a result, they submitted a proposal, which was accepted. As a direct consequence of this work, there have been 45 papers written by Smithsonian scientists and published in the scientific literature. This has been a remarkably productive scientific investigation brought about by a coincidence of interests in the fauna of the area.

"The Smithsonian Institution was never asked to do, nor did they do, any "military" chemical or biological warfare research. It carried out scientific investigations appropriate to its charter and objectives, and published the significant findings in the scientific literature. These results are available for use by any Government agency, or by any nation or scientist wishing to do so.

"U.S. forces have used riot control agents and defoliants (herbicides) in the Vietnamese conflict. These materials do not cause lethalties in humans, and, as former Secretary Rusk said, are not considered to be the type of materials prohibited by the Geneva protocol of 1925.

"The only riot control agent in use by U.S. forces in Vietnam is CS, although CN was also authorized some years ago. Both are tear gases. There are no known verified instances of lethality by CS, either in Vietnam or anywhere else in the world where it has been used to control disturbances by many governments.

"Of the herbicidal chemicals, there are none used in Vietnam to destroy vegetation which have not been widely used in the United States in connection with clearing areas for agricultural or industrial purposes.

"The term 'defoliants' is often used because it properly describes the purpose of its use; that is, to remove leaves from jungle foliage to reduce the threat of ambush and to increase visibility for U.S. and Allied troops. This use of defoliants has saved many American and South Vietnamese lives.

"Herbicides are also used in a carefully limited operation in South Vietnam to disrupt the enemy's food supply. It is limited to the attack of small and usually remote jungle plots which the VC or NVA are known to be using. Usually these plots are along trails or near their base camp areas. Each such operation is approved by the U.S. Embassy and the Government of the Republic of Vietnam. Enemy caches of food, principally rice, are also destroyed when it cannot be used by the South Vietnamese. These limited Allied activities have never, in any single year, affected as much as 1 percent of the annual food output of South Vietnam.

"To date surveys have shown no evidence of substantial permanent or irreparable damage from the viewpoint of the future development of South Vietnam, attributable to the defoliation effort. The Department of Defense has supported the Department of Agriculture in studies of herbicides in analogous areas, and in a base line study of the forests of Vietnam. Recently a study, "Assessment of Ecological Effects of Extensive or Repeated Use of Herbicides," was done by Midwest Research Institute, and reviewed by a special committee of the National Academy of Sciences. It was judged by them to be an accurate and competent report. Last fall, the Department of State, with Department of Defense participation, made a survey of the ecology of defoliated areas. One of the scientists who made this survey, Dr. Fred Tschirley from the Department of Agriculture, published his report in *Science*, volume 163, pages 779-786, February 21, 1969.

"At the end of active combat, it appears probable that there will be agricultural and forestry activities and other programs which will aid the South Vietnamese people. The Department of Defense would cooperate with the Department of State and the U.S. Agency for International Development as necessary in accomplishing these. The Department of Defense supports the concept of a comprehensive study of the long-term effects of the limited defoliation program, and has

endorsed, in principle, proposals by the American Association for the Advancement of Science for such a scientific study.

"Every effort is made to assure that activities in CB do not pose hazards to the U.S. population. Strict safety practices are enforced at laboratories which do research on CB agents. Elaborate systems of air-tight hoods, air filtration and waste decontamination are employed. These precautions and procedures are reviewed by the U.S. Public Health Service as well as by our own safety experts. The equipment and building designs developed at the U.S. Army Biological Laboratories, for example, have been generally accepted throughout the world as the ultimate in safety for the investigation of infectious diseases.

"With regard to the extremely unfortunate Skull Valley incident in which a number of sheep died, the exact chain of events is still not completely understood. A freak meteorological situation was probably a major contributing factor. This matter has been carefully reviewed by a special advisory committee appointed by the Secretary of the Army and chaired by the Surgeon General of the U.S. Public Health Service. This committee has made a number of recommendations concerning test limitations, toxicological and environmental investigations, added meteorological facilities, and a permanent safety committee. All of these recommendations are being followed.

"Movement of chemical agents is governed by rules and procedures established by the Interstate Commerce Commission and the U.S. Public Health Service. The material is shipped in special containers; these containers are put on pallets if necessary and fully restrained, and an underlying layer of sand is used to reduce vibration and to absorb agent in the highly unlikely event of leakage. All shipments are accompanied by a trained escort detachment equipped with decontaminating and first aid equipment. Routes are carefully planned to avoid populated areas to the greatest extent possible; and, where they cannot be avoided, to move through them carefully and with as little delay as possible.

"The precautions taken—the use of special trains, careful routing, controlled speeds, and other measures—make a train wreck extremely unlikely. However, even further steps are taken to minimize any hazard that might result from an accident. Buffer cars are included in the train, the escort detachment is distributed in different cars to provide prompt full-train coverage in emergencies, and transit time through populated areas is minimized. Although the agents are not inert, it is important to note that transported agents are neither volatile nor in the gaseous state. They are liquid, and the most volatile is about eight times less volatile than water. The containers are not under pressure, and nerve agents are rapidly rendered harmless by fire.

"A succinct statement of the U.S. position on CB warfare was made in 1967 by then Deputy Secretary of Defense Cyrus Vance in testimony before the Disarmament Subcommittee of the Senate Foreign Relations Committee. A copy of the relevant portion of his testimony is attached.

"The United States has consistently supported the Geneva protocol of 1925, although it is not signatory to that document. The United

States supported the Hungarian revolution in 1956 for all nations to adhere to the principles of the Geneva protocol. The *New York Times* for March 19, 1969, quoted President Nixon's instructions to the U.S. delegation to the 18-Nation Disarmament Conference now meeting in Geneva. The relevant portion of his introduction is quoted below.

Fourth, while awaiting the United Nations Secretary General's study on the effects of chemical and biological warfare, the United States delegation should join with other delegations in exploring any proposal or ideas that could contribute to sound and effective arms control relating to these weapons.

"The Defense Department is fully in accord with mutual arms control efforts and supports them in every way possible. For example, members of my staff joined representatives of the State Department and Arms Control and Disarmament Agency in meetings in late April to assist the United Nations Secretary General's group of consultant experts prepare a report to the Secretary General of the U.N. on the characteristics of CB weapons.

"With regard to unilateral disarmament, it was pointed out above that CB weapons are, in many military situations, more effective than conventional weapons. Thus, a nation which lacks CB weapons and could not deter or counter their use would have to consider more extreme measures. Unilateral CB disarmament would reduce a nation's deterrent capability, it would decrease its response options, and it would ultimately seriously degrade its CB defensive capability."

STATEMENT BY THE HONORABLE CYRUS K. VANCE, DEPUTY SECRETARY OF DEFENSE,
BEFORE THE SUBCOMMITTEE ON DISARMAMENT OF THE SENATE FOREIGN RELATIONS
COMMITTEE, FEBRUARY 7, 1967

The Department of Defense has consistently supported measures aimed at achieving limitations on chemical and biological weapons.

The proposal for general and complete disarmament tabled by the United States at the 18-Nation Disarmament Committee in Geneva states as an objective of our Government the elimination of all stockpiles of chemical and biological weapons and the elimination of all means of delivery of weapons of mass destruction.

We supported the U.S. affirmative vote in the United Nations General Assembly last December on a resolution calling on all nations to observe the principles and objectives of the Geneva protocol of 1925. We have observed these principles consistently since 1925, although the United States, as you know, did not ratify the Geneva protocol.

We have consistently continued our de facto limitations on the use of chemical and biological weapons. We have never used biological weapons. We have not used lethal gases since World War I and it is against our policy to initiate their use. We have used riot control agents in Vietnam—agents similar to those used by police forces throughout the world. We have also used herbicides to destroy vegetation and crops in Vietnam.

I have indicated that we seek international understanding to limit chemical and biological warfare and that we have not used weapons of the sort condemned by the Geneva protocol. I should also point out that we have at the same time maintained an active chemical and biological program. In the last few years we have placed increasing emphasis on defensive concepts and materiel. As long as other nations, such as the Soviet Union, maintain large programs, we believe we must maintain our defensive and retaliatory capability. It is believed by many that President Roosevelt's statement in 1943, which promised "to any perpetrators full and swift retaliation in kind," played a significant role in preventing gas warfare in World War II. Until we achieve effective agreement to

eliminate all stockpiles of these weapons, it may be necessary to be in a position to make such a statement again in the future.

Mr. MAHON. You may proceed.

HISTORY OF U.S. POLICY ON CB WARFARE

Dr. MACARTHUR. The first question I want to address is: What is the U.S. policy on chemical and biological warfare?

In 1943, President Roosevelt stated that we would not be the first to use chemical warfare but that we would be prepared to retaliate if such was used against us.

This statement has been espoused by President Truman and President Eisenhower.

Members of the last administration also made similar statements. For example, on February 7, 1967, Mr. Vance, Deputy Secretary of Defense, said:

We have consistently continued our de facto limitations on the use of chemical and biological weapons. We have never used biological weapons. We have not used lethal gases since World War I and it is against our policy to initiate their use. We have used riot control agents in Vietnam, agents similar to those used by police throughout the world.

This policy continues to be that of the present administration. In fact, President Nixon recently directed a comprehensive study of the U.S. position with regard to both chemical and biological warfare.

CONTROL OF CB WEAPONS

Another question that comes up very often is: Do we consider riot control agents as CB warfare as defined by the Geneva protocol? The answer to that is no. In fact, in December 1966, our representative to the U.N., Ambassador Nabrit, spoke in support of the Hungarian resolution that all nations should abide by the protocol. He stated on that occasion that riot control agents and herbicides did not constitute chemical warfare. His statement was not rebutted. The riot control agents we use are those used by police forces throughout the world.

Are we participating in any action to curb these weapons? Yes, we supported the Hungarian resolution in December 1966, and indeed at the present time we are participating with 13 other nations in a study for the U.S. Secretary General on the effects of CB weapons. This will be used by the U.N. General Assembly and the 18-Nation Disarmament Conference Committee in Geneva next month.

Two months ago President Nixon gave the following charge to the U.S. delegation to the the 18-Nation Disarmament Committee:

While awaiting the United Nations Secretary General's study on the effects of chemical and biological warfare, the U.S. delegation should join with other delegations in exploring any proposal or ideas that could contribute to sound and effective arms controls relating to these weapons.

EFFECTIVENESS OF CHEMICAL WARFARE AGENTS

I would like for a moment to dwell on the types of chemical and biological systems we have. On the chemical side, in addition to mus-

tard, we have lethal chemicals of the same types as the chemical warfare agents developed by the Germans prior to World War II. These are more powerful than several of our well-known insecticides, and about 10 times more potent than the most toxic of World War I gases.

A lethal dose of these agents is about 1 milligram per person.

Mr. FLOOD. Would you touch upon delivery systems?

Dr. MACARTHUR. Yes. There are various ways of delivery. You can deliver in artillery shells or bombs, rockets, or you can deliver them from spray tanks.

Mr. MINSHALL. How much of a drop is a milligram?

Dr. MACARTHUR. One-fiftieth of a drop.

I would like to elaborate on that.

There has been a lot of misunderstanding, not so much about toxicity, but about its effectiveness.

Mr. SIKES. The story has gone around that there is enough of this material on hand to kill everybody in the world.

Dr. MACARTHUR. Thirty times over.

Mr. SIKES. This might be true if you lined them up and injected them one by one.

Would you get into the practicality of this statement?

Dr. MACARTHUR. I would be happy to, sir.

As you indicated, if you simply do the arithmetic you arrive at the conclusion that that could be accomplished if you line them up and inject them one by one with the minimum amount of agent.

But that is just like saying we have enough bullets to kill the population of the world 50 times over, or 100 times over if you equate one bullet with one individual.

It is totally impossible to get 1 milligram inhaled by every person in any practical situation.

Due to atmospheric dilution, absorption by the terrain, and destruction in deployment (when I say destruction I mean part of the agent is physically burned up as the munition bursts), the quantity required is much higher. In fact, a typical nerve agent—I am talking right now about GB—requires 1 ton of agent dispersed in the air to produce 50 percent casualties to unprotected personnel over an area of about 1 square mile. Now this is more effective than high explosives but certainly not as effective as nuclear weapons and most certainly not as effective as some self-ordained experts who write and talk about it would have us believe.

Does that answer your question?

Mr. SIKES. I think so.

Dr. MACARTHUR. One ton, 50 percent casualties among unprotected personnel per square mile.

Mr. MINSHALL. What kind of a gas was that?

Dr. MACARTHUR. It is called GB.

Mr. MINSHALL. What is that?

Dr. MACARTHUR. It is a nerve agent. It is one of the most toxic ones we have.

Talking about effectiveness, I would like to extrapolate a little further and say, to attack a complete city of many millions of people—

let's say a densely populated city like New York—it would take 300 to 400 tons efficiently dispersed to immobilize the city.

Mr. MINSHALL. How would you disperse it?

Dr. MACARTHUR. Effective dispersal is difficult. That is why you require that number of tons. It would have to be dispersed in the air from aircraft or missiles which would have to fly over the city and deliver it fairly uniformly over the entire area.

Mr. ADDABBO. We do not have a stockpile that large.

Dr. MACARTHUR. Yes, we do.

I just wanted to bring out that the weapon, though effective, is not as effective as many people today make it out to be.

From the example I gave, the high logistics burden imposed, makes chemical warfare weapons clearly tactical rather than strategic.

INCAPACITATING AGENTS

Mr. FLOOD. Wouldn't it be more effective to disable than to kill troops? Wouldn't it cause the enemy more trouble to disable him than to kill him.

Dr. MACARTHUR. Yes, it imposes a greater logistic burden on the enemy when he has to look after the disabled people. And we do R. & D. on chemical warfare agents that are not lethal but incapacitate.

For clarification, incapacitating agents are agents that incapacitate troops by either physical or mental effects (or a combination of both) so that they constitute no effective threat. We have to insist, by definition, that the lethal dose of such an agent is so high that the risk of death is minimal. We have one standard agent of this kind called BZ, and it is effective up to 2 or 3 days.

Mr. EVANS. What does it do?

EFFECTS OF BZ

Dr. MACARTHUR. BZ brings about complete mental disorientation as well as sedation which induces sleep.

Mr. SIKES. Explain that in more detail.

Dr. MACARTHUR. First of all the individual is completely confused as to what he is doing or what he is supposed to do and in addition he has hallucinations.

Mr. SIKES. He cannot concentrate on the task in front of him.

Dr. MACARTHUR. He cannot carry out his assigned duties nor can he remember what his assigned duties were.

Mr. FLOOD. Isn't there a nausea and temporary physical disability?

Dr. MACARTHUR. From BZ?

Mr. FLOOD. Yes.

General STONE. I don't think there is any nausea.

Dr. MACARTHUR. You are correct, General Stone. There is physical incapacitation but vomiting is not a usual symptom.

Mr. SIKES. Is there complete recovery?

Dr. MACARTHUR. Yes, there is.

Mr. SIKES. It is automatic?

Dr. MACARTHUR. Yes. It takes 2 or 3 days. He does not need any therapy, if I understand the sense of your question.

APPLICATION OF BZ

Mr. SIKES. How is this incapacitant administered?

Dr. MACARTHUR. It is administered the same way as a lethal chemical agent.

It has to be inhaled.

Mr. SIKES. What is a dose that will incapacitate?

Dr. MACARTHUR. The incapacitating dose is about 2 milligrams by inhalation.

Mr. FLOOD. Is this a first cousin of LSD?

Dr. MACARTHUR. Chemically, no, and although some of the effects are similar, the mental effect is as a depressant and not one of excitation. There is no relationship from a chemical standpoint.

Mr. MINSHALL. It has to be inhaled? You cannot put it in the water supply?

Dr. MACARTHUR. Yes you can. I should have said earlier it has to be ingested into the body through inhalation or other means.

Mr. MINSHALL. Suppose you put this into the water supply?

Dr. MACARTHUR. You would need tons and tons of the material before it would have any effect whatsoever because of the dilution effect. It would take about a ton for a 1-million gallon reservoir.

Mr. MINSHALL. How soon is it effective?

Dr. MACARTHUR. The onset time of the effects is 1 to 1½ hours after ingestion and the effects last 2 or 3 days.

Mr. ANDREWS. And they get it by inhalation?

Dr. MACARTHUR. Yes, in a tactical field situation.

Mr. SIKES. The distribution is the same as for the nerve gases?

Dr. MACARTHUR. Yes; it would be distributed by the same type of weapons, but engineered so that the munition or grenade has no fragmentation or blast effect to injure target personnel.

STOCK OF BZ

Mr. SIKES. What kind of stocks do we have and what kind of capacity do we have for production?

Dr. MACARTHUR. As far as BZ is concerned our stock of bulk agent is less than 10 tons.

Mr. SIKES. Ten tons would be effective against what size military unit? A regiment or a division? A brigade?

Dr. MACARTHUR. Ten tons would take care of one battalion.

Mr. SIKES. We do not have very much.

Dr. MACARTHUR. I would agree.

Mr. SIKES. And very little capacity to manufacture more.

Dr. MACARTHUR. That is right. We have no capacity. We procure it from industry.

COST OF BZ

Mr. FLOOD. Is it expensive to manufacture?

Dr. MACARTHUR. I believe it is in the region of \$5 to \$10 a pound, but I would like the opportunity to supply the exact figure for the record.

Mr. FLOOD. It is expensive.

Dr. MACARTHUR. Yes.

(Note: Current cost of BZ is \$20 per pound.)

Mr. FLOOD. Where do your raw materials come from, Continental United States?

Dr. MACARTHUR. Yes, sir.

Mr. SIKES. Compared to other chemical or biological weapons, is it expensive?

Could you give us some of the range of cost on these?

Dr. MACARTHUR. The nerve agent GB is \$1 to \$2 a pound. VX is \$2 to \$3 a pound.

Mr. ANDREWS. What is VX?

Dr. MACARTHUR. That is a nerve agent similar to GB, but in addition to being effective through inhalation it can also be effective through the skin—that is why we call it a percutaneous agent.

PRODUCTION OF BZ

Mr. MINSHALL. What is the lead time for manufacturing these incapacitating agents? How long would it take for you to make 10 tons of BZ?

Dr. MACARTHUR. Six to 9 months.

Mr. MINSHALL. With the plants that you have going, or the standby's?

Dr. MACARTHUR. Our three chemical plants which are in stand-by are for nerve gases. BZ would be procured from industry; however, there is no requirement for additional production.

Mr. SIKES. Can you switch to an industrial chemical operation?

Dr. MACARTHUR. Yes, for an incapacitant.

Mr. SIKES. Quicker than you can put your own plants back in operation?

Dr. MACARTHUR. For incapacitants we would go to industry. For lethal agents, we could recondition our plants more rapidly than we could procure from industry.

LETHAL VERSUS INCAPACITATING AGENTS

Mr. FLOOD. Why do you emphasize and lay so much stress on the stockpile and speak so highly of the killer rather than the disabling agent? You have so much of the killer and you are so concerned about it and so interested in it and you beat your chest about it. Why not the disabling agent? Why not that first?

Dr. MACARTHUR. We have had lethal agents for a long time and they are the ones that comprise our stockpile. I merely want to get the record straight on what the agents can and cannot do. Incapacitating agents are a more recent development and are largely in the R. & D. phase. In fact, the prime emphasis in agent R. & D. is on developing better incapacitating agents. We are not emphasizing new lethal agents at all.

In fact, we have not in this country developed any new classes of lethal agents. They were developed by other countries and we have just adopted them. As far as R. & D. is concerned, the amount of R. & D. dollars we are spending on developing more toxic lethal

agents is no more than \$500,000 per year. We are concentrating on incapacitants.

Mr. FLOOD. If you are talking about a lethal agent, it does not matter how many you have. If you are killed by one it doesn't matter what it is called. And it does not matter whether the Germans or British created it. We have it.

Mr. SIKES. When you speak of the development of incapacitants, what do you include? How many different agents?

Dr. MACARTHUR. We are looking at various types on the chemical side. In addition to chemical incapacitants you can have biological incapacitants.

On the chemical side we are looking at four classes of compounds.

Mr. SIKES. You say looking at them, what does that mean?

Dr. MACARTHUR. We are synthesizing new compounds and testing them in animals. I should mention that there is a rule of thumb we use. Before an agent can be classified as an incapacitant we feel that the mortality must be very low. Therefore, the ratio of the lethal dose to the incapacitating dose has to be very high. Now this is a very difficult technical job. We have had some of the top scientists in the country working for years on how to get more effective incapacitating agents. It is not easy.

OPERATIONAL STORAGE LIFE OF AGENTS

Mr. FLOOD. We have the question of longevity as between a killer chemical agent, the longevity of a biological lethal agent and the longevity of any incapacitant.

You have four questions. You have a chemical lethal agent. You have a question of longevity. How long will it live? How long is it effective? How long will it stockpile and be effective? Six months, 6 years, a century?

Then you have a biological killer. How long will it be with us? What is its longevity or effectiveness?

Then you go to the nonlethal category, the disabling agents. You have the same classification. How long will it be chemically effective and how long biologically effective?

Mr. SIKES. Generally let's have the periods at which these materials in the different classifications enumerated by Mr. Flood can safely be stored and will retain their effectiveness.

Dr. MACARTHUR. We maintain our chemical and biological agents now—

Mr. FLOOD. Not 100 percent effective, but operationally effective.

STORAGE OF CHEMICAL AGENTS

Dr. MACARTHUR. As far as chemicals are concerned, I would say the lethal capacity can be effective for indefinite periods of time.

Mr. FLOOD. That doesn't satisfy me. By "indefinite" what do you mean? Six months, 6 years?

Dr. MACARTHUR. Five to ten years.

General STONE. Beyond that time period we begin to worry about what is happening in the munition, itself. The fuzes for example.

Dr. MACARTHUR. Also, after that period the container might start to leak due to corrosion.

STORAGE OF BIOLOGICAL AGENTS

Mr. SIKES. What is the case with biologicals?

Dr. MACARTHUR. On the biologicals the lifetime is much, much less.

The half-life of a few is something on the order of 3 to 4 years. Most biological agents have half-lives of 3 to 6 months, but only if kept under refrigeration.

Mr. MINSHALL. Would it be possible to transfer it from one container to another after a certain period of time without endangering those doing it?

Dr. MACARTHUR. Safety is always one of the things that is very difficult to define. Transferring from one container to another definitely involves a lot of hazard and many safety precautions would have to be taken. It would be easier to produce more than to salvage the old material from a safety standpoint.

STORAGE OF INCAPACITATING AGENTS

Mr. FLOOD. Now how about the disabling agent?

Dr. MACARTHUR. As long as you are talking about chemical incapacitants, which are solids rather than gases, I would say 5 to 10 years.

Mr. MINSHALL. What kind of containers are these stored in that you are afraid they might deteriorate? What are they made of?

Dr. MACARTHUR. The containers are the munitions which are metal, usually steel, although aluminum is sometimes used. Agents stored in bulk are in steel cylinders.

DEVELOPMENT OF LETHAL WEAPONS

Mr. SIKES. Let me see if I understand the statement you made a little bit ago. You say we are not seeking to develop new chemical killers such as the nerve gases?

Dr. MACARTHUR. That is right.

Mr. SIKES. Are we updating or modernizing the ones we have or do we think they are adequate?

Dr. MACARTHUR. We think from a toxicity standpoint that they are toxic enough. Where we are losing most of the effectiveness is in the dissemination process. So our R. & D. emphasis is on increasing the operational utility of the ones we have.

Mr. SIKES. What are other countries doing, notably Russia, are they developing new weapons or are they taking to improving their dissemination process?

Dr. MACARTHUR. The Russians certainly are doing R. & D. in this area.

Mr. SIKES. Are they developing any new chemical weapons in the lethal field?

Dr. MACARTHUR. Yes, there is information of a new agent which they have developed.

Mr. SIKES. Which we do not have?

Dr. MACARTHUR. We do not have it in stockpile.

Mr. SIKES. What are its characteristics?

Dr. MACARTHUR. —.

Mr. SIKES. Does it have advantages we should have in our weapons?

Dr. MACARTHUR. Yes. Then there is another agent the Russians have—GD. In terms of inhalation toxicity, GD is not any more effective than GB, which we have. However, if we were attacked with GD, we have no adequate therapy, which we do have for the other nerve agents.

Mr. FLOOD. They have been bragging about their anthrax for years.

Dr. MACARTHUR. We were talking about chemicals.

Mr. SIKES. Are we seeking to develop a remedy?

Dr. MACARTHUR. We have had R. & D. programs at the Edgewood Arsenal working on the GD therapy problem for at least 5 years, now.

Mr. SIKES. Without success?

Dr. MACARTHUR. To date without complete success. And there are other countries working on the same problem.

Mr. SIKES. What do the Russians do to provide a remedy for their own gas if it gets out of hand?

Dr. MACARTHUR. That I do not know, sir, and I cannot answer. We do know that they have therapy or a remedy for the nerve agents we have stockpiled.

TRAINING OF RUSSIAN SOLDIERS IN CBW

Mr. FLOOD. But it is also true that far beyond our training, almost without exception—so our intelligence indicates—that every Russian man in uniform is trained as well as possible depending upon his job, in offensive and defensive biological and chemical warfare.

Dr. MACARTHUR. That is right. Their soldiers get extensive training in chemical and biological warfare operations—offensive and defensive.

Mr. FLOOD. And also radiological and atomic ABC.

Dr. MACARTHUR. That is right.

Mr. FLOOD. And they have been doing it for some time and they are good.

DEVELOPMENT OF NEW INCAPACITANTS

Mr. SIKES. Are we seeking to develop new incapacitants or to improve the ones that we have?

Dr. MACARTHUR. We are seeking to develop new incapacitants.

Mr. SIKES. Will you provide for the record some information on what we are doing in that field? What can you tell us about the Russian capability in the field of chemical incapacitants?

Dr. MACARTHUR. I am not personally aware, and I do not think anybody here is, about what the Russians are doing in the field of chemical incapacitants. Whether they are doing R. & D. or have incorporated them in military weapons, we do not know. I will submit for the record information on our program.

(The information follows:)

Chemical incapacitants are substances which cause incapacitation with an extremely small risk of death or permanent injury to personnel. They would be used in weapons with very little risk to personnel, such as pyrotechnic grenades. Possible uses include attack of mixed population of enemy and civilians, capture of prisoners, and similar actions where the intent is to reduce the scale of vio-

lence with minimum risk to target personnel. Compounds investigated include LSD, which was discarded as unsuitable in view of deleterious side effects, including possible genetic effects. We have one standard agent, known as BZ, which has the effect of causing confusion, disorientation, and slowing of mental and physical activity. Research is under way on several classes of compounds of greater promise.

DEVELOPMENT OF BIOLOGICAL WEAPONS

Mr. SIKES. Tell us something about the biological weapons, both lethal and incapacitants. Tell us what we are doing and what the Russians are doing.

Dr. MACARTHUR. I am sure all of you know biologicals are micro-organisms.

We have had a policy that the biological agents that we would try to develop would be noncontagious; that is, that it could not be passed on directly from individual to individual.

Mr. FLOOD. Would they be effective if not contagious?

Dr. MACARTHUR. They could be infectious from the standpoint that they would be used as a primary aerosol and infect people inhaling it. After that they could be carried from me to you, say by an insect vector—a mosquito, for example.

Mr. FLOOD. Could they be effective and contagious?

Dr. MACARTHUR. No.

Mr. FLOOD. I doubt that. I doubt that.

Dr. MACARTHUR. A contagious disease would not be effective as a biological warfare agent, although it might have devastating effects. It lacks the essential element of control which I alluded to earlier since there would be no way to predict or control the course of the epidemic that might result.

Mr. SIKES. Tell us the story of our progress and our capability.

Dr. MACARTHUR. I want to reemphasize that our policy has been not to develop any contagious agents so that we could control the effects so that they would not "boomerang" on our own people if ever we were forced to use them. Typical examples of diseases caused by agents we have worked on are tularemia, Rocky Mountain spotted fever, "Q" fever, Venezuelan equine encephalitis. These agents are different from the chemicals in that they are naturally occurring diseases.

Mr. SIKES. Are all of these lethal?

Dr. MACARTHUR. No. Some of these are lethal and others are non-lethal.

Mr. FLOOD. Could any be inherent by transmission? One generation to another?

Dr. MACARTHUR. If you are talking about genetic effects, no.

I would like to dwell a moment on the limitations of biological weapons which most people don't fully understand and consequently lead to a great deal of public misunderstanding. They are just not as effective as they are made out to be by many people.

LETHAL AND INCAPACITATING AGENTS

Mr. FLOOD. Break out for the record which are lethal and which are incapacitants.

(The information follows:)

BIOLOGICAL AGENTS

The following potential biological agents are among those that have been studied for offensive and defensive purposes:

Incapacitating:

Rickettsia causing Q-fever
Rift Valley fever virus
Chikungunya disease virus
Venezuelan equine encephalitis virus

Lethal:

Yellow fever virus
Rabbit fever virus
Anthrax bacteria
Psittacosis agent
Rickettsia of Rocky Mountain spotted fever
Plague

Mr. FLOOD. Now go ahead with your answer.

LIMITATIONS OF BIOLOGICAL WEAPONS

Dr. MACARTHUR. Talking about potential offensive agents, I will first restate the constraints I mentioned earlier that we have put on ourselves as a matter of policy to prevent exactly what people have been saying—that there will be a worldwide scourge, or a black death type disease that will envelop the world or major geographical areas if some of these materials were to accidentally escape. That could not possibly happen with the biological agents that we have. That is a constraint that we have put on ourselves.

However, to keep the record straight, we have done a small amount of research on a few agents that do not satisfy this constraint—the reason for this is that a potential enemy might use them against us and we have to be prepared to defend ourselves—so we try to develop vaccines and rapid identification systems, for example, for defensive purposes.

Another constraint is shown by analysis of the logistic burden. To store biological agents, you either have to have constant refrigeration, or have them freeze-dried and even then you cannot prepare these agents for long periods of time before use.

Also, when they are exposed to the atmosphere with its ultraviolet rays, the organisms are killed.

Light kills them and so to be effective you have to only disseminate them under cover of darkness. And there are only so many hours of darkness. Let's assume there are 10 hours of darkness and the normal average wind speed is 10 to 15 miles an hour. Then your agent cannot travel and be effective for more than 100–150 miles downwind. So it is clear it cannot be effective on a continental scale by disseminating upwind.

Mr. FLOOD. Isn't this then important? Your primary object in CB warfare is not to attack a population or a city, it is to attack a limited objective of troops on the line for a specific period of time for a specific purpose; isn't it?

Dr. MACARTHUR. The answer is "Yes." There is no question as far as chemical agents are concerned, they are tactical agents and anyone familiar with their characteristics recognizes them as tactical weapons. Personally I cannot conceive of them as strategic weapons.

The biological agents are considered strategic rather than tactical weapons but there are many limitations which I pointed out earlier. When we talk of strategic applications, we think of large area coverage, but as I said you can only cover so much because of the germicidal effects of ultraviolet radiation.

Also, for most of these agents there is natural immunity. Some people will not be affected because of natural immunity. Second, you cannot use the same agent twice against the same population because after the first attack, the people build up immunity to that agent.

Mr. SIKES. Would that be true of chemical incapacitants, if you use it once you can use it 2 days later with the same effect?

Dr. MACARTHUR. You can use it ad infinitum with equally good results.

CHLORINE AND PHOSGENE

Mr. SIKES. How about chlorine and phosgene?

General STONE. We are selling the last of our phosgene.

Mr. SIKES. Why?

General STONE. They are very much less effective than the G agents. Phosgene is a lethal agent.

Mr. MINSHALL. Who did you sell this to?

General STONE. To two chemical companies who use this as a raw material in the manufacture of plastics. The material is being moved out of Rocky Mountain Arsenal. There is some still at Rocky Mountain but it has all been sold. The Government, as far as I know, owns no phosgene at the present time.

USE OF DISSEMINATORS IN VIETNAM

Mr. SIKES. When the use of chemicals was begun in Vietnam it was found the disseminators we had on hand were generally of World War II vintage and extremely limited in capability and in number. Have we overcome that shortcoming?

Dr. MACARTHUR. Well, efficiency of dissemination is a problem that has been with us for a long time.

Mr. SIKES. My statement was true; was it not?

Dr. MACARTHUR. Your statement was perfectly true. And we are spending R. & D. on getting more effective methods of dissemination, to get most of the agent that is in a munition to the target area in an effective form. And we do have a number of more effective munitions for tear gas (CS) than we had a few years ago.

Mr. SIKES. Have we developed new and effective disseminators since their use began in Vietnam?

Dr. MACARTHUR. We have a pyrotechnic CS grenade which has an efficiency of 50 percent.

Mr. FLOOD. Fifty percent? That is very good; is it not?

Dr. MACARTHUR. It is good compared to what we used to have, but I believe we can do much better.

Mr. FLOOD. Fifty percent for any munition is pretty good.

Dr. MACARTHUR. Yes, but I think we can and should increase the efficiency.

Mr. SIKES. You are using a number of other disseminators in Vietnam. Give us for the record a rundown of what you are using and what improvements have been made.

(The information follows:)

When we went into Vietnam the Army was equipped with the M-7 type grenades as the only riot control munition. Since that time we have developed a family of weapons, as follows:

Cartridge, 40 millimeter, CS, XM 651-E1.
 Rocket launcher, E-8.
 Cartridge, 4.2 inch, mortar, CS, XM-630.
 Cluster bomb, E-158/E-159.
 Fuse and burster for bulk agent XM-925.
 Grenade, CS XM-54.
 Grenade, hand, riot, CS-1, M-25 series.
 Grenade, hand, riot, CS-2, M-7 series.
 Cartridge, 105 millimeter tactical, CS.
 Bomb, chemical, BLU 52.
 Dispenser and bomb, aircraft, CBU 30.

USE OF CHEMICALS IN VIETNAM

Mr. SIKES Now tell us about the use of chemicals in Vietnam. What are you using? What has been their reception by U.S. field commanders, and their effect against the enemy?

Dr. MACARTHUR. Well, there are two types of chemicals that we are using in Vietnam. The first is riot control agents and the second is herbicides. One is antipersonnel, one is antivegetation.

I want to make clear that we do not consider riot control agents to be chemical warfare agents as defined by the Geneva Protocol. They are tear gases that are used in the United States, and by civil authorities all over the world.

Mr. FLOOD. And if this goes in the record, I repeat for you, when Ambassador Nabrit, who is the retiring president of Howard University and Ambassador to the United Nations, when this presentation was made, it was not rebutted.

Dr. MACARTHUR. The agent we are using—the tear gas we are using in Vietnam, is CS.

Now in terms of effectiveness, the troops who have used them and the field commanders feel there are many situations where the use of CS has enhanced our military effectiveness. For example, in situations where the civilians are mixed in with the military, in situations where there are bunkers that high explosives just cannot take care of; in denying the use of tunnels, after our troops leave the area. It is also useful in flushing the enemy out of tunnels.

In Vietnam it has saved many U.S. and Vietnamese lives.

Mr. FLOOD. Have we used Mace?

Colonel OSICK. We have not, no.

Mr. SIKES. General, what can you tell us about the attitude of U.S. field commanders and the effectiveness of these weapons against the enemy?

General STONE. CS is very well accepted. It has been 3 or 4 years since we first introduced this over there. We have had several commanders and they have learned how to use these materials more effectively. I think Dr. MacArthur has stated all the specific types of tactical usages to which it can be applied. It is the degree to which they are being applied. The requirement in terms of numbers of munitions and tonnages of material has indicated an acceptance.

Mr. FLOOD. How about the troops?

General STONE. They like it very much. It flushes out Charlie, gets him out of the bushes, and they are able to see who they are fighting.

Mr. SIKES. The demand has been great from field commanders because of the effectiveness of the weapon; is that right?

General STONE. Yes, sir.

Mr. SIKES. Will you provide information on the actual quantities of different kinds of chemical weapons that have been used in Vietnam, so we will have some comparison of the effectiveness?

(The quantities of CS used in Vietnam by type of weapon has been provided to the committee and is classified.)

Mr. MINSHALL. Have you had sufficient supply of these tear gases to take care of the commanders' needs in Vietnam?

General STONE. Yes, quite well. The quantities of production have been stepped up several times and I believe at the present time we are satisfying all requirements.

Mr. MINSHALL. Has there been a time when you have been in short supply?

General STONE. Yes, there was initially as we were getting going.

Mr. MINSHALL. When was that?

General STONE. About 3 years ago. I think we should supply this for the record.

Mr. MINSHALL. Fine.

(The information follows:)

PROCUREMENT OF RIOT-CONTROL AGENT CS (ALL SERVICES)

(In thousands of pounds)

Fiscal year	CS in weapons	Bulk CS-1	Bulk CS-2
1964.....	233	142	.....
1965.....	93	182	.....
1966.....	458	1,217	.....
1967.....	509	770	.....
1968 (programed).....	869	3,504	931
1969 (programed).....	2,334	192	3,884
Total.....	4,496	6,007	4,815

MACE

Mr. MINSHALL. I would like to know a little bit more about Mace. Are you qualified to tell us about that? We have read so much in the papers about it, whether it is harmful or whether it is not harmful. One report said it was harmful and another said it is not harmful. What are the facts?

Dr. EMERSON. We ran some experiments with Mace as it is commercially available, at Edgewood Arsenal.

Mr. FLOOD. Many police departments will use it and many are against it.

Dr. EMERSON. On rabbits, which was the only test animal we used it on, we found that in some cases there was some damage, very slight damage to the eye.

Mr. MINSHALL. Permanent damage to the eye?

Dr. EMERSON. No.

Mr. FLOOD. There are reports to the contrary.

Dr. EMERSON. I know it.

Mr. MINSHALL. What do you mean damage to the eye? How temporary was it? Describe that damage a little more.

Dr. EMERSON. The lens on the eye became opaque. Our experiments only ran for 30 days. The Food and Drug Administration at the same time ran some experiments. They did not duplicate the damage that we got. By that time we had determined that we wanted to go with CS rather than CN, which is the product in Mace. It was no longer of any interest to the Army and we dropped our experiments at that point. Food and Drug continued.

Mr. MINSHALL. What is the fact in your opinion? Is Mace harmful or isn't it?

Dr. EMERSON. In the form you buy it today it is dissolved in a petroleum base and there is some question as to whether it is the petroleum base or the CN. We haven't determined that because we were not interested in it.

Mr. MINSHALL. What is your opinion, Dr. MacArthur?

Dr. MACARTHUR. I would like to comment on the way the experiment was made. The rabbit's eyes were kept open and the material was dropped in.

Many people feel that if anything is squirted at the eye the automatic response is for the eyelid to close, so that it is unlikely that the same concentration that was used in the experiment will get into the eye.

Mr. MINSHALL. If you get enough soap in your eye in a heavy concentrate, it will do some damage, won't it?

Dr. MACARTHUR. Yes.

Mr. SIKES. Was it really a harmful effect?

Dr. MACARTHUR. Yes, during the experiment. The question is how much will get into the eye in a practical situation.

DANGER TO USER OF MACE

Mr. FLOOD. On the delivery there is also a problem. There is a very strong opinion that the man who delivers it is in great danger as well as the man who is supposed to receive it.

Dr. MACARTHUR. Usually in greater danger.

Mr. MINSHALL. Why do you say that?

Dr. MACARTHUR. I am not now talking about Vietnam but talking about—

Mr. MINSHALL. The commercial applications in this country with the police department.

Dr. MACARTHUR. I am sorry, I was thinking, you can go out and get Mace as an ordinary John Smith citizen and carry it and use it for self-protection.

Mr. MINSHALL. Mr. Flood implied it was more dangerous to the man using it against the potential foe.

Dr. MACARTHUR. What I thought Mr. Flood was implying was that it was more dangerous to the person who was going to use it because the act of reaching for the item might provoke a more violent response on the part of a potential attacker.

Mr. FLOOD. Many police departments advise against the female carrying a small gun in her handbag for exactly the same reason.

POSSIBILITY OF PERMANENT EYE DAMAGE

Mr. MINSHALL. Would you recommend to a police department based on the experiments that you have conducted, that Mace is safe, or is it unsafe to use, as far as permanent eye damage?

Dr. MACARTHUR. Based on my personal knowledge of experiments conducted at Edgewood, I think no definitive conclusions can be drawn. I do not believe I am in a position to say whether it would be safe or unsafe. The indications from the experiment were that it might be unsafe. However, we have to look carefully at how the experiment was conducted in terms of whether it represents a true simulation of a practical situation before we come out with a definitive answer saying it is safe or unsafe.

I myself as an individual, couldn't in all good conscience say whether it was safe or unsafe.

Mr. SIKES. Now would you get into herbicides as used in Vietnam?

CS NOT HARMFUL

Dr. MACARTHUR. May I make one more comment on tear gas?

We know of no death in Vietnam or in any situation where CS has been used—no situation where anybody has died because of the effects of CS. A lot of people feel that CS kills people.

Mr. ADDABRO. Has anybody been permanently maimed by the use of CS?

Dr. MACARTHUR. I personally do not know of any such instance.

General STONE. I know of no such instance.

USE OF CN RATHER THAN CS

Mr. MINSHALL. Why would people go from CS to CN? What is the advantage of one over the other?

Dr. MACARTHUR. Are you talking about the police departments?

Mr. MINSHALL. Yes.

Dr. MACARTHUR. I think the manufacturer decided that he was going to manufacture a product with CN, because it was better known, and that is what was available and so he selected CN over CS. I think it was a pure and simple thing like that.

General STONE. I think the military has really had the national capacity to produce CS tied up for military use and the civilian users have not been able to get hold of CS. They have been able to get hold of CN.

Dr. HARRIS. There is the historical fact that CN has been an article of commerce for a long time. CS was developed under our aegis only about 10 years ago and it is only now becoming accepted and being produced for commercial use.

Mr. MINSHALL. Do you mean the ordinary tear gas?

Dr. HARRIS. No; CS. There are a number of tear gases and to distinguish, CN is an older one. It was in World War I for example. It has been in commercial supply for many years. CS was more recently developed by the military. It now is becoming known by the general public and becoming available.

Mr. MINSHALL. But CS is not Mace?

Dr. HARRIS. No. Mace contains CN. We are now conducting some experiments in our research and development program to see if one can make a Mace-type weapon using CS.

Dr. MACARTHUR. We are not using Mace.

Mr. MINSHALL. What are these little guns that used to be advertised like a fountain pen that you could put tear gas in?

Dr. MACARTHUR. They contain CN, as does Mace. They were not advocated by the Defense Department.

HERBICIDES

USE IN VIETNAM

Mr. SIKES. Herbicides in Vietnam, now, please.

Dr. MACARTHUR. Herbicides are plant control chemicals and they are used in many countries throughout the world by millions of pounds a year. Domestic use is 50 to 70 million pounds per year in the United States. People continually say, "You are not using herbicides, you are using defoliants." Defoliants and herbicides are one and the same. We call them defoliants because we use them to defoliate the jungles. We use them to defoliate the jungle along the sides of roads to reduce ambush and save lives, and along enemy trails to reveal enemy traffic and camps, and for very limited anticrop use along infiltration routes on rice plots used by the enemy.

In fact, when we started using it, the ambush rate on roads—main roads leading out of Saigon—was reduced by 90 percent while the ambush rate in other areas of the country remained the same. So that is an indicator that its use was successful.

Secondly, when we use it, the vertical visibility through the jungle is increased by 80 percent and the horizontal visibility through the jungle is increased by 40 to 60 percent.

Mr. SIKES. Does that mean you can also take pictures if necessary of what is under the jungle cover when you could not while the leaves were on the trees?

Dr. MACARTHUR. That is exactly the reason we use it to detect the enemy, in addition to ambush prevention.

Mr. FLOOD. This can only be delivered by air?

Dr. MACARTHUR. No. If you want to put your herbicides on a rice plot that is known to have been planted along the trail by VC for later use you just take a little sprayer. But the most effective way for large area coverage is aerial delivery.

NO KNOWN PERMANENT DAMAGE

Mr. SIKES. What about permanent damage to the area insofar as the production and reproduction of vegetation is concerned?

Dr. MACARTHUR. Before we initiated the use of herbicides in Vietnam, we conducted studies in Thailand, Texas, and Puerto Rico, to see what the long-term effects would be—the short-term and long-term effect, in fact. When we first started using them in Vietnam, they were closely monitored by a technical group including experts from the U.S. Department of Agriculture. Based on the studies we did before we went to Vietnam, based on what we have seen in Vietnam—

and we have experts who have gone there who are not members of the Department of Defense—and based on a study done for us by Midwest Research Institute of Kansas City where they reviewed 1,500 reports and interviewed 140 experts, they concluded that no startling adverse results were likely to occur.

In addition, recently the U.S. Embassy in Saigon jointly with MACV looked into this matter again with the aid of Dr. Fred Tschirley of the U.S. Department of Agriculture, and came to the same conclusion. However, he did recommend—Dr. Tschirley—that an in-depth study be done after cessation of hostilities to see if there was any long-term permanent effect that hadn't been shown up by all the previous studies.

Mr. SIKES. You can find out the same information by driving along any highway or right-of-way where defoliants are used by power line companies, by telephone companies, by others who want to prevent the growth of underbrush and they have to use it over again every year to keep the underbrush down.

Dr. EMERSON. The Department of Agriculture has plots in Beltsville that are over 10 years old that they have yearly reports on, with no permanent damage.

STOCKPILING

Mr. SIKES. Let's get into the field of stockpiling and then shipments. Tell us about stockpiling, first.

CHEMICAL AGENTS

Dr. MACARTHUR. First of all, taking the chemicals, our stockpile for chemicals is ——— approximately half mustard and half nerve agents. About one-quarter of this is in weapons—the rest is in bulk.

The best intelligence estimates we have indicate the Russian stockpile is 7–10 times ours.

The Chinese stockpile could be as high as ———. We don't have any other firm information on stockpiles of any other countries but there have been news accounts that the Egyptians recently did use lethal chemical agents in Yemen.

I just want to emphasize that at the present time we are not producing any chemical agents for stockpiling. Our three plants that had been used in the past are now in a standby status.

We are not producing any biological agents at the present time.

BIOLOGICAL AGENTS

Mr. SIKES. What do you know about the comparative stockpile of Russian biological agents?

Dr. MACARTHUR. ———.

Mr. SIKES. What about incapacitants? Did you include those in your prior figures?

Dr. MACARTHUR. Yes. In fact, the materials I referred to are incapacitants.

As far as the Russians' biological warfare R. & D. is concerned, we don't know too much about that, but we know from the scientific literature that the Russians have published openly on most of the biological

agents that we have ever considered. So, we have to believe they are probably working in the same areas.

SYNTHETIC BIOLOGICAL AGENTS

There are two things about the biological agent field I would like to mention. One is the possibility of technological surprise. Molecular biology is a field that is advancing very rapidly, and eminent biologists believe that within a period of 5 to 10 years it would be possible to produce a synthetic biological agent, an agent that does not naturally exist and for which no natural immunity could have been acquired.

Mr. SIKES. Are we doing any work in that field?

Dr. MACARTHUR. We are not.

Mr. SIKES. Why not? Lack of money or lack of interest?

Dr. MACARTHUR. Certainly not lack of interest.

Mr. SIKES. Would you provide for our records information on what would be required, what the advantages of such a program would be, the time and the cost involved?

Dr. MACARTHUR. We will be very happy to.

(The information follows:)

The dramatic progress being made in the field of molecular biology led us to investigate the relevance of this field of science to biological warfare. A small group of experts considered this matter and provided the following observations:

1. All biological agents up to the present time are representatives of naturally occurring disease, and are thus known by scientists throughout the world. They are easily available to qualified scientists for research, either for offensive or defensive purposes.

2. Within the next 5 to 10 years, it would probably be possible to make a new infective microorganism which could differ in certain important aspects from any known disease-causing organisms. Most important of these is that it might be refractory to the immunological and therapeutic processes upon which we depend to maintain our relative freedom from infectious disease.

3. A research program to explore the feasibility of this could be completed in approximately 5 years at a total cost of \$10 million.

4. It would be very difficult to establish such a program. Molecular biology is a relatively new science. There are not many highly competent scientists in the field, almost all are in university laboratories, and they are generally adequately supported from sources other than DOD. However, it was considered possible to initiate an adequate program through the National Academy of Sciences-National Research Council (NAS-NRC).

The matter was discussed with the NAS-NRC, and tentative plans were made to initiate the program. However, decreasing funds in CB, growing criticism of the CB program, and our reluctance to involve the NAS-NRC in such a controversial endeavor have led us to postpone it for the past 2 years.

It is a highly controversial issue, and there are many who believe such research should not be undertaken lest it lead to yet another method of massive killing of large populations. On the other hand, without the sure scientific knowledge that such a weapon is possible, and an understanding of the ways it could be done, there is little that can be done to devise defensive measures. Should an enemy develop it there is little doubt that this is an important area of potential military technological inferiority in which there is no adequate research program.

CROSS-COUNTRY SHIPMENT OF LETHAL AGENTS

Mr. SIKES. Now, let's talk about shipments. There has been a great deal of discussion—most of it hostile—about the proposal to ship certain stocks of nerve gas across country for transporting to a deep

ocean area and disposal. Tell us something about the reasons, and the alternatives, and why you propose to follow this procedure and what the alternatives would be.

Dr. MACARTHUR. I would like Colonel Osick, who is here, who is the action officer in this program, to address himself to that question.

OBSOLETE CHEMICAL AGENTS

Colonel OSICK. Sir, we have roughly 27,000 tons of obsolete or unserviceable munitions.

Mr. SIKES. What do you mean by that? They have been stored too long?

Colonel OSICK. Some of them stored too long. In the case of the Air Force bombs, they have become obsolete because of the calendar time. They were all manufactured in 1953 and 1954 and with an expected life span of 5 to 10 years, but, more importantly, for an aircraft that is no longer in the inventory.

In addition to that, in the normal surveillance performed year by year and in analyzing the results, we find that they are passing the point in time where they are now beginning to leak. The Air Force recently declared them obsolete and has no requirement for them. Since we are the custodians of them we are now obligated to carry out some type of disposal.

In addition to the Air Force bombs, we have a number of Army rockets. This rocket is an item about 6 feet long, about 115 millimeters in girth, holds about 10¾ pounds of nerve agents in the head and has a motor and booster that goes with it. This is a thin-skinned rocket made of aluminum. It was a first step in this area and we are finding now that, having been in storage for some time, there is an electrolytic process that sets up and we are getting leakers. We don't really know what is happening in all cases. As a result of our surveillance, we have identified those leakers and they have been put aside and encased in concrete and are part of the disposal action that you hear of.

Recently it has been determined by DOD that we had sufficient quantity of mustard and could dispose of a large part of it. This, too, then was added to the disposal action.

In addition to that, we have some contaminated containers. We don't know really what contaminated them, whether it was an arsenical or phosgene or what, and we are not sure we can decontaminate it satisfactorily and we have declared them excess and are disposing of those.

The last item in this group is some CS. This CS was manufactured and put up with a pyrotechnic mix designed to go into an artillery shell, but the CS itself was rejected as not being able to meet the specifications. Rather than burn this in the atmosphere, this rather large quantity of 3 tons we decided to encase it in concrete to provide the negative buoyancy and include this in the shipment.

NEED FOR SHIPMENT

Now, what does this shipment involve? We have most of the shipment at Rocky Mountain Arsenal in Denver. Let me go back about

a year and a half ago. We undertook, in the DOD and the DA, a look at our stockpile, where the items were located, and the need to provide proper security or to reorganize our stocks and relocate them. As part of this look, we faced the gut decision of what was to become of Rocky Mountain Arsenal. When the arsenal was constructed in the early part of World War II, Denver was a long ways away, as they say out West, and today we find it right snug up against the back door. The municipal airport there has expanded. Twice we have given up 650-acre plots and the FAA and the city and county of Denver are asking for additional ground.

Decision was made to relocate the stocks which are now above ground in Denver to other relocations and provide necessary storage and security.

When the Air Force identified certain items as being excess, we then looked at what were the methods of disposal. We had on three different occasions disposed of unserviceable items by taking them to sea and dumping them. The Maritime Administration makes available an old hulk from the Reserve fleet; it is stripped of anything usable in shipyards and then they literally have holes cut in the hulk and patched. The hulk is then filled with these unserviceable munitions, towed to a site, the patches are pulled off and literally the hulk sinks as a container.

Since we had done three of these in the past and it has proven to be the cheapest and safest—

Mr. SIKES. When was this done?

Colonel OSICK. The last one was done in 1967. I have the exact dates here.

Mr. SIKES. Provide it for the record.

(The information follows:)

There have been three previous CHASE operations involving chemical munitions:

<i>Date of operation</i>	<i>Material involved</i>
June 15, 1967-----	Concrete coffins of M-55 rockets, 1-ton containers of mustard
June 19, 1968-----	Concrete coffins of M-55 rockets, 1-ton containers of mustard
Aug. 7, 1968-----	Contaminated 1-ton containers (water filled)

DISPOSAL LOCATION

Mr. FLOOD. Where?

Colonel OSICK. At the same site we planned to do this one. The figure 250 miles east of Atlantic City has been used, but I will not use that. It turned out to be incorrect.

Mr. FLOOD. What is peculiar about that site? With all the seacoast we have, why pick on the same site three times?

Colonel OSICK. That particular site is one of two on the east coast that is identified on maritime maps as a disposal area.

Mr. FLOOD. That doesn't answer my question.

Colonel OSICK. I will get to it, sir.

The geography of it, the depth at which we will drop this, the marine life and what we know about what is on the bottom there is ideal for this type of dump. It is in 1,200 fathoms of water, roughly 7,200 feet.

We have dumped other munitions there before and therefore shipping stays away from it. It is off the Continental Shelf not near the

normal Russian fishing fleets that come into the area, and impinging on this is also the length of time we want to have this tow in hand. Certainly there are deeper parts in the ocean and more remote. The tow from New Jersey to the site is about 20 hours.

Mr. SIKES. Why not the Pacific coast? Denver is much closer to the Pacific coast. You have a munitions loading area out there that presumably you could use for this.

Colonel OSICK. In looking for a port in which we would carry this operation out, we looked at Concord in California. We looked at Bangor in Washington. We looked at Charleston, S.C.; Yorktown, Va., and Earle, N.J. We ruled out Bangor—we didn't; the Navy did. They are the ones that had to recommend the ports. They ruled out the one in Bangor, Wash., because it was heavily committed to Southeast Asia and it services a large part of the Polaris fleet.

They felt they could not undertake this operation and fulfill their mission.

Concord was ruled out largely for the same reason.

Charleston does have three piers. One is under repair at this time and not available—

Mr. FLOOD. Mr. Sikes asked you about the west coast and not Charleston.

Colonel OSICK. I have essentially finished the west coast.

Mr. FLOOD. Only two spots on the west coast?

Colonel OSICK. Only two were looked at. The Navy felt the facilities to carry this out were only available in these two locations.

Mr. SIKES. Do you have to outload from a defense installation?

Colonel OSICK. It would certainly be desirable.

Mr. SIKES. Is that what you are trying to get at?

Colonel OSICK. Because of the nature of the items there is security involved with them. The safety procedures and the handling equipment normally wouldn't be available at a civilian facility. I would say categorically, yes.

Mr. SIKES. How about San Diego?

Colonel OSICK. As far as I know, the Navy did not even consider San Diego. The Navy has only two west coast ports qualified to handle this type of operation. San Diego is not one of them.

METHOD OF SHIPMENT

Mr. MINSHALL. To move this gas and the bombs and all, how many freight cars and/or trains would be required to do it?

Colonel OSICK. We have estimated the number of cars to be 800. We estimate the trains would be between 60 and 70 cars, so we are talking about 12 or 13 trains.

Mr. MINSHALL. These things are all encased in cement?

Colonel OSICK. No, the bombs themselves—if I can describe the bomb for you, the package and then I will describe its course across country. The bomb is a thousand-pound bomb composed of 76 sub-munitions or bomblets. The bomb, when it is completely manufactured, weighs about 1,300 pounds. The bomblet inside is about 10 inches long and contains about 2.5 pounds of nerve agent. It has a half-pound of tetryl and a fuse. The bomblets are arranged such that four bundles of 19 are placed in this container. Each bomb is

pressing on the other, holding down a delay bar. The delay bar, when released, activates a parachute delay to allow the bomblets to swing clear, and have the parachute pop out the back. The sudden change in velocity inertially arms the fuse, allowing the bomblet to hit the ground and explode.

Unless the explosion takes place, we don't have any nerve agent vaporized in the form of a gas. It is a liquid much like water. Now, this bomb, as it is going to be packed for shipment to come East or wherever we go, if we go any place, could contain four of these 1,300 pound bombs to a skid, banded and strapped together and placed in a steel boxcar. Those items that are in concrete are the rockets. They are about 6 feet long and about 4 inches in diameter. They have been placed 30 to a coffin to provide necessarily a package and give it the negative buoyancy required to keep it at the bottom. These coffins weigh about 13,000 pounds. The block of cement is wrapped with a one-quarter inch steel plate, double-welded to provide a hermetic seal.

We feel the safety involved in this package is so great that it is hard to even calculate.

First, you have the rocket immobilized in concrete. While there has been no test that I know of to ignite one of the rockets to see if it would escape the concrete, it appears it would be very, very difficult to make this happen. If the agent should develop leakage within the concrete, the concrete would tend to absorb it. The vapor would be certainly held in there. Further, it would be encased within the double-welded liner.

POSSIBILITY OF ACCIDENT DURING SHIPMENT

Mr. MINSHALL. There has been much publicity about one of these trains going from Denver to whatever port this might be, and if you had a train wreck, what is the situation then?

Colonel Osick. This boxcar with 12 skids in it containing 48 bombs—granted a boxcar isn't very heavy steel, maybe quarter inch steel, but if you assume that an individual sitting alongside a culvert with a high-powered rifle which has enough power to penetrate this quarter-inch steel and still retain on the tip of the bullet enough of an incendiary head to cause something to ignite—let's bring across that path a tank car full of propane gas shipped under pressure. If this happened, we would have a fabulous explosion and a large fire. I think you will find if you examine the area that most of the things in the immediate area would be destroyed and we would set most of the things burnable on fire.

Bring this same car with our nerve agent in it and give the man the credit of penetrating the car. He would then have to penetrate another quarter inch of steel of the outer casing, and let's assume it does that. It would then have to find one of the bomblets, and there is a void between the bomblets, but assuming he finds the bomblet it then goes through the bomblet and into the half-pound of tetryl. What would we get? We would get agent leaking into this big container, leaking like water. Certainly you would have some vapor coming off. But here the plan for the shipment again is to examine this car about every 12

to 18 hours and look for just these things happening. If a bomb should leak, detect it, find it, isolate it, fix it or remove it.

I can't say this is so safe nothing would happen. If this car blew up by somebody's planting a large pile of TNT or dynamite under it, certainly it would rip the car open.

If this car were to go through an open drawbridge, for example, let's assume it ripped open. We would find some of these containers being crushed. We don't believe that any of the agent would get loose or get into the water.

Last week at the Naval Ship Research and Development Center, we asked them to take one of our bombs as configured for shipment and submerge it and expose it to some external hydrostatic pressures to see what would happen to it as it goes down through the levels of water that we would plan to sink it through.

We found at slightly below 265 p.s.i. we got buckling in the outside of the casing, although no leakage. We found the item would get to 7,200 feet, it would be intact and that the bomblets inside the container again would buckle but there would be no leakage.

We took the bomblet down to 8,000 p.s.i. external pressure, equivalent to a depth of about 16,000 feet. Again we found the very pronounced buckle about three-quarters of the length of the bomb and about a quarter of the girth but again no rupture. Admittedly, it was a limited test. We did one empty casing, one complete bomb and 10 small bomblets. In no case were we able to rupture the bomblets.

I would conclude then, while it would be thrown asunder in the water and conceivably could be crushed, it would only be from running into a spike or something physical down there. If that happened, we would have some contaminated water from what spilled out. Hydrolyzing in fresh water is a lot different than in salt water, and I am not technically qualified to say what it would be, but it would be a different problem. There would be some contamination.

General STONE. In all of our munitions, the standard test is a 30-foot drop test. These clusters have been tested. There is a free drop of 30 feet on all corners tried from a number of attitudes onto a hard cement pad. This simulates a crash at some speed, I am not sure what.

POSSIBILITY OF DISPOSING OR STORING GAS IN DESERT

Mr. MINSHALL. Would it be feasible to take this stuff from your Denver arsenal and rather than ship it to one coast or the other, take it out into some wasteland in Nevada or a desert area and store it?

Colonel OSICK. If I may add one thing to follow up on Mr. Sikes' question on why we didn't go up to the North, the Navy tells us now that with the decreased load in Southeast Asia and with the Polaris scheduled the way it is, there might be a time between, I believe they said the middle of June and early September, that they could fit two ships in out of the Bangor pier up in Washington. They haven't said they can, they said they were willing to look at it real hard and might be able to work it through there.

Mr. MINSHALL. The headlines in the Seattle paper would be banner tomorrow morning if this were known.

Mr. SIKES. I would think there would be less objection from the sources you were discussing if it were out of Concord, which has no other principal function.

Colonel OSICK. It is the Navy's responsibility to come up with a port.

COST OF LAND VERSUS SEA DISPOSAL

Mr. MINSHALL. To revert back to my question about disposing of it or storing it in some desert area; is that feasible?

Colonel OSICK. I guess everything is feasible. Yes, sir. We have gone through it. In the land burial we estimated that to prepare the ground, fill the pit with concrete, move the items there, make sure the ground is blocked off or fenced so that animals or human beings would not traverse the top of it, and insure there would be no percolation up; about \$11 million and about 39 months to do it.

Mr. SIKES. Compared with what cost for disposal by sea?

Colonel OSICK. About \$3.9 million and 3 months.

Mr. MINSHALL. How much area would be required to dispose of this and to bury it? How many acres, square miles or whatever it might be?

Colonel OSICK. I would have to provide that.

Mr. SIKES. Provide the details for the comparison for the record.

(The information follows:)

It is estimated that approximately 25 acres of land would be required to bury on land the items in Project Chase.

COST OF DROP TESTING BOMBS

Mr. SIKES. Did you have this testing done at the model basin on a reimbursable basis?

Colonel OSICK. The Navy provides the facilities and we provide the transportation to get it there. It was a joint project.

Mr. SIKES. Would you be able to find out how much it cost jointly, Army and Navy?

Colonel OSICK. I am sure we can.

(The information follows:)

Cost of crush test of M34 bombs

U.S. Army:	
Preparation for shipment.....	\$2, 028
Transportation	4, 690
Technical escort team.....	1, 375
U.S. Navy: Test.....	2, 200
Total	\$10, 293

PURPOSE OF DROP TESTING BOMBS

Mr. SIKES. Now, is this a new test or is this a duplication of something that was done 6 or 8 years ago?

Colonel OSICK. So far as I know, it is the first time it has ever been done.

Mr. SIKES. What was the purpose in having it done at this point? Is this simply to answer some newspaper headlines?

Colonel OSICK. No, a committee of the National Academy of Sciences is meeting to consider the subject, and it was felt by some of the scientists that this was the type of information they would need to have.

Mr. FLOOD. Just don't get any bright ideas like the Atomic Energy people. Keep out of my mines.

Colonel OSICK. Yes, sir.

TRANSPORTATION OF CB WEAPONS DURING WARTIME

Mr. SIKES. For the record, provide these answers: How would we be able to utilize our stockpile of chemical biological weapons if they were required in war? Would we have serious problems in transporting them safely to the combat area?

How is it proposed that this be accomplished?

What period of time would be required?

Are our stockpiles of such weapons only in continental United States or do we also have them stockpiled worldwide, including Europe and Southeast Asia?

(The information follows:)

TRANSPORTATION IN WARTIME

All weapons, including the M34 chemical bomb, are designed and constructed to be safely shipped by normal freight (rail or truck) in their final configuration. They meet all specifications and regulations of the Department of Transportation and its regulatory offices, and all other applicable regulations. In wartime the weapons would be safely shipped to active theaters by normal transportation (rail, truck, and ship). All shipments of toxic agents are accompanied by trained technical escort teams, equipped to handle any incident, and provided with decontaminating materials for use in the unlikely event of a spill. In this regard, it is well to realize that no present chemical or biological agents are gases under pressure. All are liquids or solids, so that any rupture of a container would contaminate only a small localized area, easily decontaminated. The time required would be that for normal transportation by the carriers mentioned.

CB TRAINING RECEIVED BY RUSSIAN SOLDIERS

Mr. SIKES. I would like to have provided for the record a comparison of the Russian training given to the Russian soldiers in this field, both offensive and defensive training, versus that of the United States.

(The information follows:)

RUSSIAN TRAINING

ORGANIZATION

(a) The chemical branch of the Soviet Army is a separate troop directorate under the Ministry of Defense. It is considered to be a combat arms branch.

(b) Most significant of the chemical organizations of the Soviets is the chemical defense organization. Unlike our organization, where identification, decontamination, and CBR reconnaissance are dependent on individuals within the unit, the Soviet organization has special chemical defense units to accomplish these actions. Each Soviet front in time of war is supported by a chemical brigade, each combined army and tank army is supported by a chemical battalion, each motorized rifle and tank division is supported by a chemical company, and motorized rifle and tank regiment is supported by a chemical platoon. These chemical troop units have special responsibilities for reconnaissance, decontamination and medical treatment (first aid, primarily) during chemical war-

fare. They also provide training in offensive chemical operations and supervise CB detection, reconnaissance, and decontamination training in peacetime. This organization provides an excellent chemical defense posture spread out through all echelons of command. It also has the advantage of being able to mass chemical defense organizations where the need exists.

TRAINING

(a) The Soviet training program is characteristic of any well-planned training program. The Military Academy of Chemical Defense located in Moscow and the Higher Officers Chemical School located on the testing grounds of Shikhany provide schooling for senior chemical officers. The Chemical Officers School at Yaroslavl gives instruction in offensive and defensive procedures that could be compared to our basic officers' course, and the School for Chemical Troops at Saratov provides specialist training for the chemical enlisted men assigned to the various chemical units.

(b) The individual soldier is also well trained in CBR defensive procedures. The use of diluted toxic chemical agents to provide realism in field training for CBR personnel has been confirmed. The Soviets believe that these realistic measures stimulate a psychological awareness in the soldier that will improve his combat efficiency, and demonstrate the adequacy of protective equipment. The Soviet soldier is well trained in the use of his protective mask and is required to use it often and over extended periods. Field exercises and maneuvers are usually based on the theme of nuclear and chemical warfare. The Soviet Army training follows the concept that chemical and nuclear warfare are a normal part of war and any future general war will be characterized by the use of these weapons.

PRODUCTION CONVERSION TO WAR FOOTING

Mr. SIKES. I would like to have for the record information on the time required to achieve a war footing if it should be necessary to resort to these weapons in time of war and what steps would be taken. How would industry be brought into the picture?

(The information follows:)

CONVERSION TO WAR FOOTING

On competent authority to begin mobilization, existing industrial mobilization plans would be implemented. One of the first steps would be the assignment of priorities in an environment that would already be strained by the pressure of production requirements in many other areas. These priorities must be sufficiently high to permit adequate acquisition of materials, both for chemical ingredients and hardware for munitions components.

It is estimated that to build production to a rate equal to combat consumption from our present posture would take about ———. The long lead time is predicated on the present condition of our production base, that is, all CB production facilities for lethal or incapacitating systems are either laid away or in a standby status.

RUSSIAN MILITARY DOCTRINE

Mr. SIKES. I believe it has been testified by you, Dr. MacArthur, that the Russian capability in chemicals is substantially 10 times that of ours?

Dr. MACARTHUR. Yes, sir.

Mr. SIKES. Would it be safe to assume that most of the Communist world capability is in Russia, whereas most of the free world capability would be in the United States?

Dr. MACARTHUR. In terms of nerve agents, the answer is yes.

Mr. MINSHALL. What is your estimate of how the Russians would use this large stockpile of gas that they have?

Dr. MACARTHUR. Their military doctrine is for tactical use, on a massive scale.

Mr. MINSHALL. It wouldn't be used against mass populations in this country?

Dr. MACARTHUR. Not chemicals, but for the biological, their doctrine calls for its use in combination with a nuclear attack—to follow a nuclear attack with a biological attack. The nuclear attack will take care of our defenses and installations and the biological weapon will take care of people.

Mr. MINSHALL. Do the Russians have that capability to follow up?

Dr. MACARTHUR. If that is part of their doctrine we must infer that they feel they have the capability.

Mr. MINSHALL. What protection do we have in this country?

Dr. MACARTHUR. As far as the population is concerned?

Mr. MINSHALL. Yes.

Dr. MACARTHUR. The Office of Civil Defense has developed a mask that could be mass-produced, but we haven't done this because it is felt that the possibility of use of biological weapons against the United States at the present time is not high. Should the situation demand it, we could mass-produce the masks in sufficient quantity to protect a population in a relatively short time.

FIVE-YEAR BUDGET FOR CHEMICAL AND BIOLOGICAL WEAPONS

Mr. SIKES. For the record, please provide for 5 fiscal years up to and including fiscal year 1970, a breakdown of the budget which will show a comparison by major fields. For instance, R. & D., munitions manufacture, plant facilities, et cetera.

(The information follows:)

CB FUNDING, FISCAL YEARS 1966-70

(Programed figures in millions of dollars)

	Fiscal years				
	1966	1967	1968	1969	1970
Procurement:					
Smoke and flame weapons.....	66	71	139	185	128
Riot-control weapons.....	17	17	70	83	57
Herbicides.....	20	39	31	2	10
Defensive equipment and miscellaneous.....	19	11	54	21	28
Lethal chemicals.....	12	9	-3	0	0
Total.....	134	147	297	291	223
R.D.T. & E.:					
General and basic R. & D.....	15	12	10	9	9
Offensive R. & D.....	50	44	35	31	31
Defensive R. & D.....	26	23	23	30	30
Test and evaluation.....	23	23	19	20	18
Total.....	114	102	87	90	88
Operational maintenance of depots, etc.....	120	120	15	16	15
Military construction (plant facilities and R.D.T. & E.-related facilities).....	10	3	2	8	4
Total program.....	278	272	406	405	335

¹ This is a level-of-effort figure.

(Clerks note: The 1969 column of the above table was developed subsequent to the hearings and therefore does not agree with the table on page 108.)

ABOLITION OF CHEMICAL CORPS

Mr. SIKES. I would like to know what the effect is from the standpoint of chemical officers as of today on the abolition some years ago of the Chemical Corps, which I thought was a serious mistake in view of the highly specialized nature of the Corps and its activities.

General STONE. Well, sir, as I believe you know, the school system we had in the days of the old Chemical Corps has been maintained and all Chemical Corps officers do receive the regular training. We still have staff positions, not as key chemical officers, but inserted within the operations directorates where we do in general have chemical officers with this background located in the operations sections in major tactical units.

I personally think we have done quite well in holding together a corps of technical talent.

Mr. SIKES. Is it more difficult under the present procedure than it was under the Chemical Corps?

General STONE. Sir, I don't believe so. I thought it would be at the time technical services were dissolved. I believe it has worked out quite well. At last from my own personal observation it has.

Mr. SIKES. Are you a chemical officer?

Colonel OSICK. Yes, sir, I am.

Mr. SIKES. What is your feeling on the matter?

Colonel OSICK. I think generally, as General Stone says, there certainly has been some evidence that perhaps if we had the old corps together it might be working a little bit smoother, but generally speaking, overall, I think we have fitted into the structure and have adapted.

Mr. SIKES. From the standpoint of the scientist, do you wish to add anything to these comments?

Dr. MACARTHUR. No. I would personally agree with what has been said.

General STONE. I might add one fact. Since we no longer exist as a separate corps, it has enabled us to be accepted by the line groups.

Mr. SIKES. Do you have an opportunity to express those views freely?

General STONE. Yes, sir; more so, I would say.

TIME LIMIT ON DISPOSING OF OBSOLETE CHEMICALS

Mr. ADDABBO. On the question of transportation, the chemicals which are outdated, must those chemicals be disposed of within a given period of time?

Colonel OSICK. We have the cost to maintain an old obsolete item. The other is that the time to dispose of it at sea is limited by the hurricane season in the East, and that is generally accepted to be hurricane free during May through August. The Navy reluctantly would proceed after mid-August, let's say, mainly because of the hurricanes, winds, and so forth.

Mr. SIKES. Have they started to be removed out of the arsenal?

Colonel OSICK. No, they have not. The plans proposed would have started the exercise about May 15 and would have completed about August 15.

Mr. SIKES. I read somewhere in the paper that they were loaded on cars and had to be taken off.

Colonel OSICK. They were loaded on cars. Because of the high demurrage cost we did unload those nondefense cars. Those cars that belonged to the Government still remain loaded.

Mr. SIKES. The cars were at the arsenal?

Colonel OSICK. They were at the arsenal loaded and ready to move.

RESEARCH AND DEVELOPMENT COSTS

Mr. SIKES. On the question of research, could you supply for the record the extent of research performed by private industry, by universities and the Government?

Dr. MACARTHUR. When you talk about the amount spent by us with universities and industry, do you include flame weapons, incendiaries and everything?

Mr. SIKES. Yes.

Dr. MACARTHUR. That is all in the \$350 million. It is a misleading figure and I think the Department of Defense will try to do something about clarifying it next year. Only \$71 million is chemical and biological warfare. The other is flame weapons, smoke, herbicides and so forth.

(The information follows:)

RESEARCH AND DEVELOPMENT COSTS BY PERFORMER

The relative participation of Government, industry and universities in the CB R. & D. program can best be illustrated by analysis of the fiscal year 1960 program:

Performer	Value (In millions)	Percent of total
Government laboratories.....	\$66	72
Industrial.....	24	26
University.....	2	2
Total.....	\$92	100

Every effort is made to assure that the university contracts are in areas of basic research appropriate to academic missions and purposes. The development of munitions, for example, is not considered appropriate, and such work is done exclusively in Government laboratories or in industry.

FUNDS FOR AREA DECONTAMINATION

Mr. SIKES. Of the amount requested, how much is for decontamination of areas?

(The information follows:)

There has been no contamination of areas or decontamination of such areas except in small laboratory studies, and any cost associated with such decontamination is very small. Area decontamination in combat situations is not envisioned; the logistic expenditure would be prohibitive. Doctrine requires that personnel decontaminate themselves and their equipment when subjected to toxic attack.

Dr. EMERSON. The figures that Colonel Osick gave you on the tonnages are the total packages, including the containers. If you take the agents, it comes out to something less than 7,000 tons.

FEASIBILITY OF RENDERING WEAPONS NONTOXIC

Mr. EVANS. With regard to the disposal problem, in that case no mention has been made about the practicality of changing the chemical qualities of the items, whether chemical or biological, so as to render them harmless. Has this been considered?

Colonel OSICK. Yes; it is possible and feasible. In the Air Force bombs, for example, we can render the agent nontoxic. However, when you look at the total package, the munition, the hazard and risk involved in taking a munition that has now reached this age, pulling it apart and doing the opposite of what was intended to do, taking out the agent and then rendering that nontoxic, we felt the risk was not acceptable.

Mr. SIKES. What about the costs?

Mr. MINSHALL. You better strike out that word "feasible." He said it was feasible and then he turned around and said it wasn't feasible.

Colonel OSICK. It can be done but it is not practical.

Dr. MACARTHUR. It is \$17.1 million for 59 months.

DANGER IN EVENT OF AIRPLANE CRASH

Mr. EVANS. We are talking about things stored in my State but not in my district.

There has been a great deal of conversation about the danger represented by the existence of these items where they are and the possibility of aircraft falling on them and releasing some of these dangerous items. Can you comment on that?

Colonel OSICK. I would merely state this, that the items were all manufactured at Rocky Mountain Arsenal and placed there. They were placed in the open for many years. They have been there since 1954. There have been no accidents so far. That is not to say one wouldn't occur. The items, as they were designed and laid out there—it has been evaluated that an airplane falling among those containers would merely scatter them. However, the city of Denver now is a lot closer than it was then and I am not so sure the same criteria would hold today.

POSSIBILITY OF MOVING ROCKY MOUNTAIN ARSENAL

Mr. SIKES. Has consideration been given to moving this arsenal to a more remote location in view of the hazards pointed out by the distinguished gentleman from Colorado and, if so, what would be the cost?

Colonel OSICK. Our technology, Mr. Sikes, as it is moving here now, envisions us not manufacturing any more GB. We think in the next 5 years certainly we can see our going to a binary-type of munition where we have two nontoxic elements that would only become toxic en route to the target or over the target. If this does come to pass, we feel that for Rocky Mountain Arsenal, as a producer of nerve agent as we have known it, the requirement does not exist. So, to answer your question specifically, while there have been some studies, I don't know of any that have been addressed to moving the entire arsenal as a package somewhere else.

Dr. MACARTHUR. In terms of the materials stored there, it is our intent to move it all. In terms of the point Colonel Osick brought

out about binary munitions, I would like to say that just to produce what the Russians have now would take us years. However, if we go to this binary munition concept, which we are working on in R. & D., we can use the industrial base of this country and at that time we really don't need an arsenal because we are producing two non-toxic items and can have a large stockpile in a short period of time.

BINARY CHEMICAL WEAPONS

Mr. SIKES. How do you spell the term "binary?"

Dr. MACARTHUR. "B-i-n-a-r-y."

Mr. SIKES. Will you provide for the record some details on just what you are seeking to do and what the capabilities and function of the weapon would be?

Dr. MACARTHUR. Yes, sir.

(The information follows:)

BINARY LETHAL CHEMICAL WEAPONS SYSTEM

Within the past few years it has been found technologically feasible to devise a shell or bomb in which two nontoxic chemicals are filled in separate compartments. During final trajectory of the munition to target the chemicals are mixed; they then react to form any selected one of several nerve agents, and are disseminated when the munition arrives on target. This is called a binary chemical munition.

There are a number of advantages of the binary system which are enumerated below:

1. Binary munitions are very much more safe than previous chemical munitions. They can be designed so that one of the two chemical components is inserted, along with fuze and burster, just before firing. During storage and transportation, the two components could be completely separated so that even if serious accident occurred there would be no possibility of formation, much less release, of toxic material.

2. There would be no need to construct and operate Government-owned toxic production facilities. The components, being relatively nontoxic, could easily be manufactured by the U.S. chemical industry and procured by DoD on competitive contract purchase.

3. Because of the tremendous capacity of the chemical industry it will be unnecessary to maintain large stocks of chemical munitions. This will result in reduction of storage depots and other economies. More importantly, it will in large measure negate the importance of stockpile discrepancies with regard to potential adversaries since our own limitation would be the rate at which munitions could be fabricated, not the amount of nerve agent on hand and in production.

Mr. SIKES. We have not completed all of the items that are before us. For instance, there is the problem of the sheep kill.

Let me suggest, doctor, that you provide a paper for the record in which you will spell out in detail any items that we have not discussed that were to have been covered.

Dr. MACARTHUR. We will be happy to do that.

(The information follows:)

ESCAPED NERVE AGENTS FROM TESTING AREA AT DUGWAY PROVING GROUND, UTAH

On March 13, 1968, a spray mission using a high performance aircraft was conducted at Dugway Proving Ground using liquid persistent nerve agent VX. One spray tank malfunctioned, so that the agent continued to trail out of the

tank as the plane rose to a higher altitude (about 1,500 feet) enroute to the area in which the tank was jettisoned. The meteorological conditions at the time of test were such that all agent would have been deposited within the test area, miles from the Proving Ground border. Subsequent to the test the meteorology changed abruptly and in an unpredicted and anomalous manner. Subsequent analysis reveals that less than 20 pounds of agent remained airborne.

On March 14 range sheep began sickening and some died later. This was not reported to the Army until March 17 at which time investigations were started. These ultimately involved the Utah State Departments of Health and Agriculture, the U.S. Public Health Service, and the U.S. Department of Agriculture as well as many elements of the U.S. Army Materiel Command. Extensive investigations finally revealed that the sheep probably ingested very low dosages of the agent VX. In later experiments on sheep, the symptoms exhibited by the range sheep were reproduced at much higher dosages, leading to the conclusion that the range sheep were more susceptible for some reason or reasons, as yet unknown. There might have been such factors as physical condition due to overwintering, and the presence on the range of various toxic plants. In view of the fact that the agent VX was apparently involved, the Army has agreed to the compensation of the owners of the sheep in accordance with established claims procedures.

In July of 1968 Secretary of the Army Stanley Resor established an advisory panel of experts from the groups mentioned above and others, and chaired by Dr. William Stewart, Surgeon General of the U.S. Public Health Service. This panel recommended certain additional restrictions on open-air testing at Dugway Proving Ground which were immediately ordered by the Secretary of the Army and are now in effect. A permanent chemical safety advisory committee has now been established to oversee testing in the future. This committee is composed of representatives of U.S. Public Health Service, Departments of Interior, Commerce and Agriculture, Utah State Department of Health, and two members representing the public at large, one of whom is the chairman.

CHEMICAL AND BIOLOGICAL R. D. T. & E. PROGRAM

The current R. D. T. & E. program in chemical and biological warfare has been divided into three priority groups, which are described in the following paragraphs.

First Priority

1. *New and improved items for individual and collective OB protection.*—This refers to improved overgarments and protective clothing with less physiological stress than those currently available; to an improved mask with less bulk and improved visibility and communication capability; to helmets with OB protection for aircraft pilots; and to protective filters and shelters for missile vans, communication centers, command posts, etc.

2. *Rapid detection and warning devices for chemical and biological agents.*—There has recently been developed a rapid automatic alarm for lethal chemical agents for Army use. Alarms for incapacitating chemical agents and for biological agents are not available but are necessary for complete defense. Specialized alarms for Navy and for Air Force use are also needed.

3. *New and improved materials and methods for prevention and treatment of OB casualties.*—Atropine and oximes provide effective treatment for some nerve agents, but other agents are refractory to therapy. There is no prophylaxis for chemical agents. A few biological agents can be treated with antibiotics, but there is no therapy for most known agents. A substantial effort is devoted to development of vaccines for both prophylactic and possible therapeutic use.

4. *Improved nonlethal and riot control chemical agents.*—The concept of reducing battlefield deaths and permanent disability by using incapacitating chemical weapons instead of bullets and explosives is relatively new. No completely acceptable agent of this type has been developed as yet; however, an extensive program to do so is under way.

5. *Binary chemical weapons.*—It is possible to make nerve agent weapons which are nontoxic in storage and shipment. This is done by allowing two nontoxic components to react chemically during the time a shell or bomb is in its

final trajectory to target. The safety advantages of such a system are obvious, and a substantial program to develop such weapons has been started.

6. *New and improved methods for personnel marking and detection.*—There has been modest success in detecting ambushes with a personnel "sniffer," and its improvement as well as development of other methods of detecting or marking people in some reliable but harmless manner is being investigated.

Second priority

1. *Universal decontamination system.*—This is an attempt to develop one material which will decontaminate all CB agents and be harmless to personnel, equipment, and structures.

2. *Advanced collective protective equipment, especially field shelters.*—The field shelter is intended to provide opportunity for troops to remove their individual protective clothing and masks and be in a safe environment while they eat, rest, and accomplish personal hygiene. Other improvements sought are decrease in weight and increased mobility.

3. *Automatic biological agent sampling system.*—Automatic biological warning devices do not provide agent identification, as is the case with chemical alarms. It is desired to have a sampling system which will be activated by the biological alarm. Laboratory analysis of the sample can then provide identification for medical planning and other purposes.

4. *Advanced field laboratory.*—A field laboratory to analyze biological samples (see above) and to investigate new or unusual chemical agents would contribute significantly to overall CB protective capability.

5. *Improved defoliant dispensers for aerial dissemination.*—The present C-123 aircraft and helicopter dispensers would be unusable against an enemy with more effective anti-aircraft weapons. Dispensers for high performance aircraft possessing standoff capability are needed.

6. *Research in biological agent and munition systems.*—The nature and extent of the threat to our national security from enemy use of biological weapons has not been completely defined. Questions such as efficiency of dissemination, whether viruses and bacteria can be mutated to new forms resistant to vaccines, the longevity of microbes in aerosols, and others must be quantitated so that we can accurately assess our vulnerability and develop effective defense.

Third priority

1. *Prevention of technological surprise in CB.*—A broad continuing research program is required to provide some attention to areas of potential technological advances not covered by the specific R. & D. efforts enumerated above. This is particularly necessary in view of the very rapid strides being made worldwide in molecular biology, pharmacology, and related sciences.

2. *Vehicle, structure, and medical CB decontamination systems.*—Pending development of a universal decontaminant, specialized decontaminating materials are needed for medical use, on vehicles and for structures, especially those containing communication equipment.

3. *Large area incapacitating weapon systems.*—A modest effort is being devoted to exploration of munitions which would be effective over relatively large areas (greater than 500 km² per aircraft, for example).

In addition, there are a number of areas which represent either continuing research efforts, or special problems of short duration not easily categorized in any of the priority areas above. For example, continuing safety research and inspection is carried on at all in-house CB installations. Analyses and special investigations for intelligence purposes are done as material may become available. A search for realistic but harmless training agents is carried out to improve troop training, and vulnerability studies of critical installations and facilities are done (e.g., missile silos).

Dr. MACARTHUR. With regard to funding, since 1964 in absolute dollars in the R. & D. for CB warfare, it dropped 80 percent, and if you add inflation to that, we are only doing 40 percent of the R. & D. in this area we were doing in 1964.

Mr. SIKES. Thank you very much, gentlemen.

MONDAY, JUNE 16, 1969.

SAFEGUARD BALLISTIC MISSILE DEFENSE SYSTEM

WITNESSES

**LT. GEN. A. D. STARBIRD, SAFEGUARD SYSTEM MANAGER, OFFICE,
CHIEF OF STAFF, U.S. ARMY**

Mr. MAHON. General Starbird, the committee is pleased to have you in this hearing room again. We are to hear your testimony in regard to the antiballistic missile system now known as Safeguard.

In your last appearance you talked about the Sentinel system and prior to that time, with various witnesses, we talked about numerous types of programs designed to counter the intercontinental ballistic missile.

The committee has already had and published a hearing with Secretary Laird which concerns itself with the philosophy of the development and deployment of an antiballistic missile system. Have you seen that hearing?

General STARBIRD. I have read it complete, both the classified and unclassified.

Mr. MAHON. Let me ask you about it off the record.

(Discussion off the record.)

Mr. MAHON. It is our purpose today to go into the details of the budget proposed for funds to implement the deployment of the system in the configuration which we now know as Safeguard. I would hope that since we have had the earlier hearing with respect to the principles and national policies involved that this hearing can be limited to the less glamorous and less exciting but very important budgetary details, and details otherwise.

Do you have a prepared statement for us?

General STARBIRD. I have a prepared statement. It would take me about 20 minutes to read, and I have some charts that go with it. I have pretty well confined to what you spoke to right then, confined myself to certain general description. In specific things, I am going to talk about on the money side, primarily in the financial side.

Mr. MAHON. You have had many assignments in the Department of Defense, General Starbird, and some of us have worked with you in connection with various programs for quite a number of years. We will let you proceed without questioning. You say your statement will probably take about 20 minutes?

General STARBIRD. That is right.

HIGH TURNOVER IN SYSTEM MANAGERS

Mr. MAHON. That is fine. Then after that we will have a discussion period, General.

Quite often a program is started, General, in the Department of Defense under the guidance of a civilian or a military official and long before the project is completed the man has moved on to some other assignment. Now, we are not expecting the impossible in connection with the Safeguard system. We recognize its weaknesses and its difficulties and we know that it could not be a perfect answer to the

problem which confronts us, but apparently it is the best answer we have at the present.

Now, is it likely that you will remain in your important post as the Safeguard systems manager until we know more about this business? In other words, will you be the goat, to some extent, if this program flops.

General STARBIRD. I came to this program about a year and 3 months ago, sir. As far as being a goat for the problem, I intend to do everything possible to make this program work right and as close as possible to the costs that are forecast for the program.

I cannot comment well as to whether or not I will stay in the current assignment. I had expected that I would when I came to it, stay for a period of 2, 3 years, and probably not much more because I am approaching the retirement age.

Mr. MAHON. Of course, we know that to get a program through research and development into production takes often 10 years or more. This program has been proceeding in one form or another for at least a decade. I assume you anticipate, though you cannot guarantee it, that you will stay with the program maybe until your retirement.

General STARBIRD. Until retirement, sir; but I don't know when that would come, actually. I am 57 years old right now. It could come at almost any time after a year from now, say.

GENERAL STATEMENT

Mr. MAHON. All right. Proceed, General Starbird.

General STARBIRD. Mr. Chairman and members of the committee, it is a pleasure for us to testify to you on the fiscal year 1970 budget request for the Safeguard program.

INTRODUCTION

I am familiar with the testimony of Secretary Laird, Dr. Foster, and General Wheeler to the committee. They covered our overall strategic posture, the threat Safeguard was designed to meet, system characteristics, and something of the characteristics of individual components. I shall avoid repeating the detailed information they have already covered. However, I would like to remind you of a few specific points they covered in connection with my explanation as to why certain funding is required. In outline, therefore, I will cover: (a) first, a résumé of those few points earlier explained by the Secretary of Defense and others; (b) second and in summary, what is our total request for fiscal year 1970, and I will break that down by appropriation; and (c) third, for each appropriation what are the amounts concerned and what the requirements are.

First, then, as to certain facts concerning the deployment:

(a) The approved deployment is only for the installation of two sites. The first of these is to be near Grand Forks, N. Dak. (chart 1), and is to be operationally available January 1, 1974. The charts being shown are the same as those in the text, Mr. Chairman. The second is to be at Malmstrom Air Force Base, Mont. (chart 1), with readiness July 1, 1974. Each is to be located within one of our six Minuteman missile wings. Each is to contain a perimeter acquisition radar (PAR) for long-range surveillance, a missile site radar (MSR) for battle direction, Spartan missiles for high-altitude long-range de-

fense, Sprint missiles for close-in terminal defense, and necessary support facilities.

(b) The basic objective of this deployment is to provide us with essential experience in the production, installation, checkout, test and operation of a ballistic missile defense entity. In addition, it will provide protection to a limited portion of our Minuteman force. It will serve as a nucleus to permit us to make rapid additions to meet an increased threat to our Minuteman missiles or other threats should one or more of these threats require.

(c) Decision as to what, if any, further deployments will be made will be decided upon annually by the President and will be based on the actual development of the threat and the international situation generally. The President is expected to make his first review as to the necessity for further deployments by January 1, 1970, prior to submission of the fiscal year 1971 budget and authorization request.

SYSTEM COMPONENTS AND STATUS

The individual components have reached a relatively advanced state of design and development. That state was explained in detail by Secretary Laird. To repeat a few key points on each, however:

(a) With respect to the PAR (chart 2), we do not intend to install a prototype. The design has been established and production has been initiated. We are not building a prototype because the radar is quite similar to other radars now in operation. We have initiated the assembly of components into a "brassboard test/bed" at the manufacturer's plant, and where we are trying preproduction components to insure that they will behave as expected.

(b) As to the MSR (chart 3), a prototype has been constructed at Meck Island of the Kwajalein Atoll. The data processor has been installed and the software is now being installed. Beginning in the first quarter of 1970, all test launchings of our Spartan and Sprint will be made from Meck Island controlled by the MSR. Beginning in mid-1970, we will start the interception of incoming target ballistic missiles fired into the atoll.

(c) The predecessor of the Spartan (chart 4), the Nike-Zeus, was, of course, fired many, many times. The first firing of a Spartan was accomplished at Kwajalein in March of 1968. We have had nine firings to date of a total planned phase 1 predeployment test program of ——— launchings. Of this number, six have been fully successful, two only partially successful and one unsuccessful.

(d) The Sprint (chart 5), being a new design as contrasted with the Spartan which was a development from an earlier design, has been under test since November 1965. We have flown some 30 missiles to date of a total planned predeployment test program of ——— launchings. Of these, 15 have been successful, eight failures, and seven partially successful. However, out of our last 11 firings, nine have been successful. Moreover, the exact causes of the two failures in the last 11 have been identified and corrective action taken. On the basis of these recent flight tests, we believe the Sprint will meet its performance specifications.

SUMMARY OF FISCAL YEAR 1970 FISCAL REQUIREMENTS

The January 1969 budgetary submission to Congress for carrying out of the fiscal year 1970 Sentinel program was for new obligational authority (NOA) totaling \$1,788 million. With the decision to adopt

an alternate deployment, a phased deployment named Safeguard, the requested fiscal year 1970 appropriation could be radically reduced. Fiscal year 1970 required total obligation authority would be \$892 million and the carryover of certain obligational authority from the PEMA and MCA earlier appropriations could reduce the new obligational authority required to \$794 million. A breakout of the request for fiscal year 1970 and earlier authorization by appropriation are as shown on this next chart (chart 6). In brief, as it indicates:

(a) With respect to R.D.T. & E.—that is particularly in the development and test phase of it—the NOA for fiscal year 1970 is \$400.9 million. We have been pressing our R.D.T. & E. to the maximum degree possible particularly in the test area. We expect to carry over no significant amount of unused obligation authority from fiscal year 1969 to fiscal year 1970.

(b) With respect to PEMA, the new obligational authority required in fiscal year 1970 is \$345.5 million, although total obligational authority (TOA) is \$360.5 million. With the decision to adopt the Safeguard deployment, we continued our procurement contracts already in force but adjusted them so that the procurement was directed at items required for the phase 1 deployment only. The adjustment has permitted us to carry over approximately \$15 million from fiscal year 1969 to apply to fiscal year 1970 requirements.

(c) In the MCA area, the change to Safeguard, and particularly the fact that the deployment schedule has been retarded over Sentinel, has permitted us to withhold obligation of much of the authority earlier granted us. The MCA funds carried over to fiscal year 1970 as reported to you by the Secretary of Defense should total \$83 million and, together with approximately \$14.1 million NOA, should permit us a TOA of \$97.1 million to accomplish construction in time to meet phase 1 site requirements.

(d) In the O. & M.A. area, our requirements in fiscal year 1970 are largely for the pay of personnel and their support. With the change of deployment we reduced our fiscal year 1970 requirement from \$60.2 million to \$23.2 million. This amount is a minimum necessary for the purpose.

(e) Our MPA area also is the minimum necessary to insure proper conduct of our program. As the chart shows, our NOA for MPA in fiscal year 1970 is \$9.8 million.

DETAIL REQUIREMENTS

With that general background, I would like to take each of the appropriations and go into somewhat more detail as to what are the requirements that necessitate the obligational authority requested. I shall take them in the order in which they are listed on the chart (chart 6) which I have just used.

R.D.T. & E. (Chart 7). With respect to R.D.T. & E., our requirements break out into four categories as shown on this chart totaling \$400.9 million.

(a) In the R.D.T. & E. area, I believe it would be well that I first summarize what we have accomplished in the last year as a backdrop to the statement of fiscal year 1970 requirements.

(1) In the missile area during the past year, we have pressed forward with the buildup of a production capability and have intensified our flight testing. Of the 22 firings in the last 15 months, 15 have been fully successful, 3 have partially achieved their ob-

jectives and only 4 have been classed as failures. The AEC has carried forward very satisfactorily its warhead testing plans and has achieved excellent results.

(2) Construction and installation of equipment in the prototype MSR was completed during the year. The radar was brought up to power and performance exceeded somewhat the design goals. The initial operating software programs are being completed, installed and checked out as portions are completed.

(3) For the PAR, in the last year, we have established the design and moved into production. We have completed the basic building criteria and design. We have started brassboard test of preproduction components.

(b) *Safeguard System Development Contract.*—As you will remember, the Government employs for the development and test of the BMD capability the Western Electric Co. as prime system contractor. Western is assisted by the Bell Telephone Labs with respect to engineering and design. R.D.T. & E. of the major components is accomplished by four subcontractors to Western Electric—General Electric for the PAR, Raytheon for the MSR, McDonnell-Douglas for the Spartan, and Martin for the Sprint. A major portion of our funding requirement is, therefore, in the system contract category, some \$318.6 million. The major activities which must be carried out and the general nature of the required work is as follows:

(1) For continued development and test of the Sprint, some \$63.9 million is required. We are scheduled to make a number of the test firings in fiscal year 1970 and this is a major portion of the requirement.

(2) With respect to the Spartan, the requirement is for \$74.0 million. We shall make a number of Spartan firings during this period. The major portion of this amount relates to continued development of the Spartan and to these specific firings. However, a lesser amount is to initiate the development of an improved third stage for the Spartan to better handle more sophisticated threats which may follow the mid-1975 threat.

(3) We are carrying out during each of the fiscal years 1968 through 1970 a very large data processing effort. The total requirement in fiscal year 1970 is \$58.4 million. This effort is largely concerned with the development of the software for our testing at Meck and for developing the actual tactical software to be used at operating sites.

(4) Continued development on the MSR including operation of the Meck prototype will cost approximately \$11.4 million and work on an improved version of the MSR to handle later threats will cost about \$9.5 million.

(5) For the PAR, the requirement is for \$25.7 million and relates largely for completion of the design documentation and the procurement and test of preproduction components prior to adopting them as production items.

(6) Overall systems engineering and integration will require \$25.1 million.

(7) The remainder, some \$49.7 million, is for site operations, fee, contractor's overhead and certain maintenance documentation and orientation for training.

(c) *System support.*—Some \$28.4 million is required for system support. Included in this requirement are funds for program manage-

ment by the Government personnel concerned; R. & D. laboratory support, support studies, and development studies; work by the Army's Munition Command on warhead adaption kits; and certain special hardness testing of components.

(d) *Test support*.—Certain R. & D. costs (\$40.7 million) are necessary as test support. The major portion of this is for test targets fired into Kwajalein Atoll (\$34.3 million). The remaining (\$6.4 million) is for special support rendered to us on a reimbursable basis by the National Ranges, primarily Kwajalein.

(e) *The Safeguard System Evaluation Agency (SAFSEA)*.—The fourth category is that for operation and support of the Safeguard System Evaluation Agency. This is an Army organization of a strength of approximately 400 military and civilian personnel which carries out for the System Manager and other Army agencies the functions of performing continuing independent evaluation of the system and participates in testing to support evaluation to insure responsiveness of the system to the user requirements. The total requirement for SAFSEA's activities for the year is \$13.2 million.

PEMA (chart 8).—As I stated earlier, with the decision to adopt the Safeguard deployment, we continued our procurements already in force but adjusted them so that procurement was directed to the items required for the phase 1 deployment only. This permitted us to carry over approximately \$15 million of obligational authority from 1969 to apply against the fiscal year 1970 requirements. The breakout of the requirements by line item is shown on pages 5, 6, 7, and 15 of your PEMA supporting data for fiscal year 1970 budget estimate (P-1 exhibit) and is also as shown on the chart (chart 8).

(a) *Sprint*.—Some \$26.5 million of PEMA TOA is required for activity related to the Sprint. This appears as lines 63 and 64 of page 5 of the P-1 exhibit.

(1) Only \$1.6 million of this amount is for hardware items for actual deployment and of this only \$0.2 million is for very-long-leadtime parts for the guidance equipment of the missiles themselves and \$1.4 million is for launch equipment.

(2) \$10.2 million is for facility amortization and for engineering related to preparation for production.

(3) \$11.9 million is for support to ready for production and for the necessary management, direction, and integration of overall Sprint effort.

(4) \$2.8 million is for preparatory measures for later installation and test, which includes work in fiscal year 1970 such as contractor planning for site activation and preparation for the conduct of tests and demonstrations.

(b) *Spartan*.—Some \$76.6 million of PEMA TOA is required for activity related to the Spartan and appears as lines 65 and 66 of page 5 of the P-1 exhibit.

(1) Only \$0.4 million of this amount is for hardware items for actual deployment. These are long-leadtime parts for the missile-borne guidance equipment.

(2) \$27.1 million is for facility amortization and for engineering related to preparation for production.

(3) \$41.1 million is for support to ready for production and for the necessary management, direction, and integration of overall Spartan effort.

(4) \$8 million is required for the preparatory measures for later installation and test.

(c) *Ground equipment.*—The largest single line item of the PEMA TOA requirement is for \$249.3 million for ground equipment and appears as lines 67 and 68 of page 5 of the P-1 exhibit. As shown on the chart, this has been broken out. I shall break this out into hardware, hardware advanced components, production base support, and so forth.

(1) *Hardware.*—The only major hardware obligated with earlier year funds was the first PAR and PAR data processor to be deployed and that for a tactical software control site (TSCS). That is the site where we test out the tactical software packages before we deploy them to the operational site. The latter is a tactical software test location. The funds for fiscal year 1970 hardware procurement total \$133 million. The main items here are the first missile site radar (\$56.4 million) and its data processor (\$46 million), certain interface and test equipment for the first PAR and augmentation of the first PAR data processor (\$11.2 million), data processing augmentation for the TSCS (\$3.5 million), and training equipment for the training facility (\$15.9 million).

(2) *Hardware advanced components.*—In addition to the above items, certain long leadtime components related to the second PAR and second MSR will be acquired with an obligation of \$20 million.

(3) \$35.5 million is for preparation for production to include facility amortization and manufacturing engineering.

(4) \$50.7 million is for the support of production to include management, direction, and integration of effort on the radars and data processors.

(5) \$10.1 million is required for preparation for later installation and test such as contractor planning for site activation and design of test procedures.

(d) *Production base support.*—Production base support is for rehabilitation, repair and installation of Government-owned industrial plant equipment at contractor plants. Production base support (as shown by line 90 of p. 6 of the P-1 exhibit) drops off sharply for fiscal year 1970, down to \$0.8 million.

(e) *Repair parts.*—The initial stockage of repair parts at an estimated \$4 million will be required as shown on line 94 of p. 7 of the P-1 exhibit.

(f) *Communications.*—Procurement of the initial portion of the communications equipment for the phase 1 sites is planned for fiscal year 1970 at an estimated \$3.3 million. This requirement appears on line 232 of p. 15 of the P-1 exhibit.

MCA (chart 9).—Appropriations given us to date in MCA have been \$81 million for fiscal year 1968 and \$263 million for fiscal year 1969, total \$344 million. With the change of deployment and the slow-down involved, we have readjusted materially our obligation schedules. Insofar as the fiscal year 1970 appropriation is concerned, you can see from the upper part of the chart that the new obligational authority required is reduced to \$14.1 million due to the proposed reprogramming and carryover of prior-year funds to offset the fiscal year 1970 TOA requirement of \$97.1 million. The \$14.1 million NOA is required for construction of R. & D. support facilities at Kwajalein Missile Range and related planning and design.

O. & M.A. (chart 10). Our *O. & M.A.* requirement is shown on this chart together with the funding situation for the 2 prior years. As you can note from the upper portion of the chart, there is a significant decrease between 1969 and 1970. This is accounted for primarily by the change in deployment plan. Our requirements breakout into three categories as shown by the line item breakout. The major portion is, of course, for personnel costs to include salaries, travel, transportation and office services. We do lease certain space for offices and we have certain contracts, primarily for analysis effort, evaluation of alternate forms of logistic support, and preparation of trade-off studies on manning and equipment requirements.

(a) The personnel funding for fiscal year 1970 is necessary to support the 1097 man years of effort required for planning, supervision and management of the program. These are the personnel in the various headquarters and offices to include my own Safeguard System Office (SAFSO), the Safeguard System Command (SAFSCOM) office in Huntsville, the Safeguard System Evaluation Agency (SAFSEA) in New Mexico, and personnel engaged in Safeguard support in the Army Materiel Command (AMC), the Continental Army Command (CONARC), the Army Strategic Communications Command (STRATCOM), and the Army Air Defense Command (ARADCOM).

(b) The \$2.1 million for leases is to cover space at Huntsville, Fort Huachuca and District of Columbia and also certain communication lease costs.

(c) The \$4.8 million for contracts is required for site operation studies, nuclear effects studies, a management data system, new equipment training, and a communication engineering study.

MPA (chart 11). The requirements in *MPA* to support the Safeguard deployment are shown by this last chart. We plan a military end strength in fiscal year 1969 of 984 and in fiscal year 1970 of 1,290. For fiscal year 1970, these include 32 military personnel in SAFSO, 121 in SAFSCOM, 159 in SAFSEA, 293 in ARADCOM, 160 in STRATCOM, 360 in CONARC, 112 in AMC, and 53 in Huntsville Engineer Division (USAEDH).

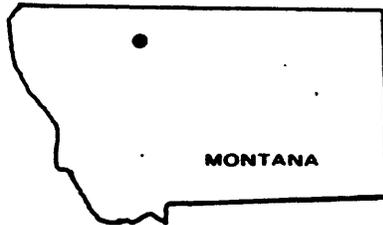
This is a summary of the situation, and I will be pleased to answer any questions at this time.

PHASE 1 DEPLOYMENT

INCLUDE IN FY 69 BUDGET REVISION &
FY 70 BUDGET REQUEST

- ▶ START CONSTRUCTION AND PROCUREMENT TO INSTALL SITES IN TWO MINUTEMAN WINGS
- ▶ SURVEY, SELECT, ACQUIRE OTHER SITES
- ▶ CONTINUE ALL NECESSARY RD&E

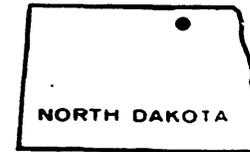
MALMSTROM



EQUIPMENT: PAR (1 FACE)
MSR (4 FACE)
SPARTANS
SPRINTS

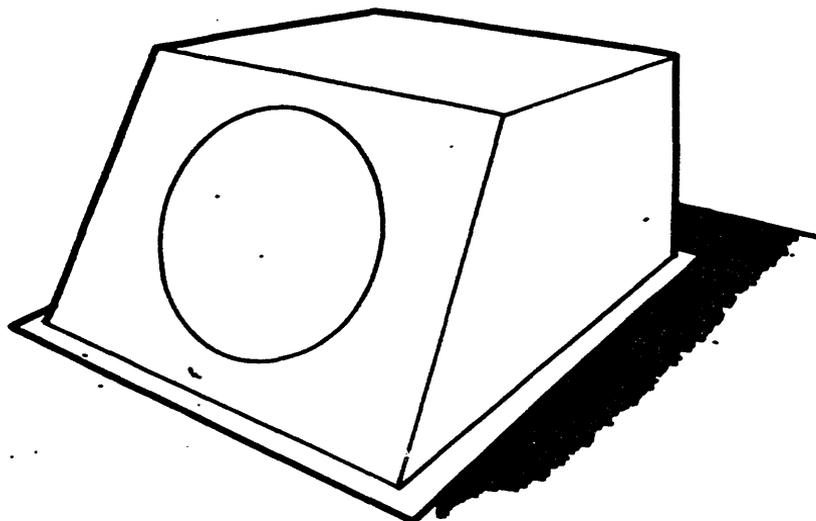
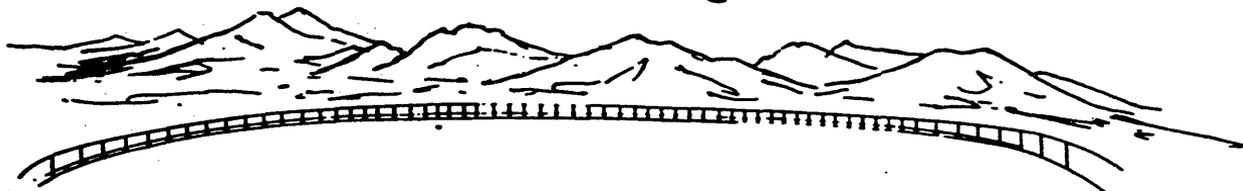
CHART 1

GRAND FORKS



EQUIPMENT: PAR (1 FACE)
MSR (4 FACE)
SPARTANS
SPRINTS

PERIMETER ACQUISITION RADAR



DEVELOPMENT STATUS
COMPONENTS TESTED, FIRST RADAR
TO BE ASSEMBLED AND TESTED
ON OPERATIONAL SITE

CHARACTERISTICS

DETECTION RANGE
GREATER THAN 1000 MILES

BUILDING SIZE
211 FT. x 209 FT. x 130 FT. HIGH

ANTENNA: DIAMETER
116 FT.

MISSILE SITE RADAR



CHART 3

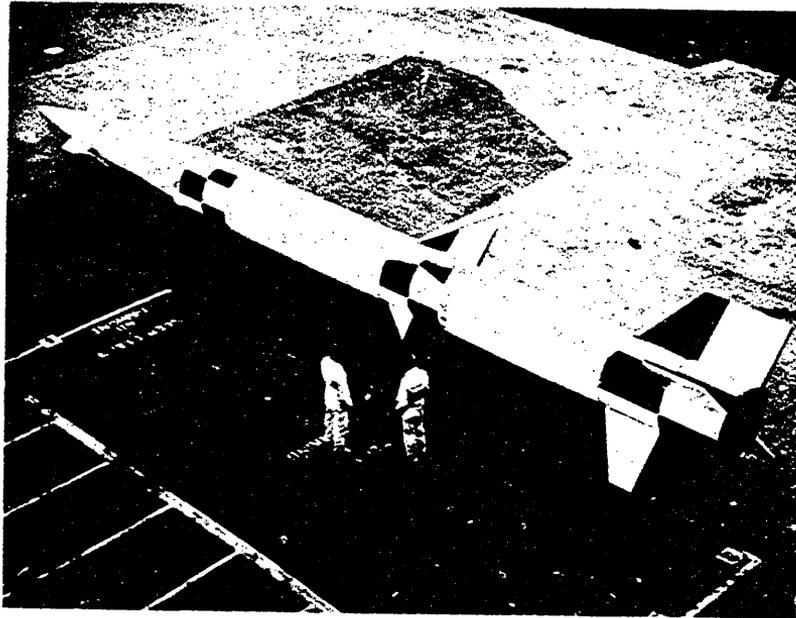
**PROTOTYPE UNIT AT
KWAJALEIN TEST AREA**

CHARACTERISTICS

DETECTION RANGE,
SEVERAL HUNDRED MILES

BUILDING SIZE
120 FT. x 120 FT. x 40 FT. ABOVEGROUND

ANTENNA : DIAMETER
13.5 FT.

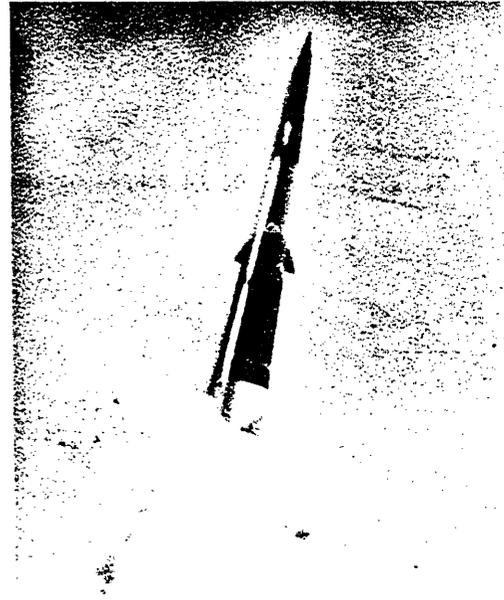
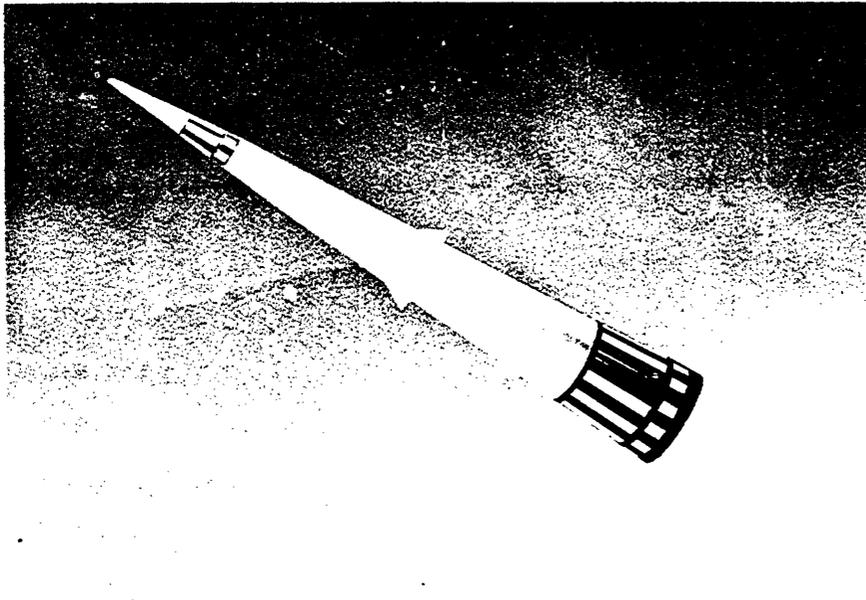


**FLIGHT TESTS IN PROGRESS
ADDITIONAL WARHEAD DEVELOPMENT NECESSARY**



**LENGTH 55 FEET
RANGE SEVERAL HUNDRED MILES**

SPARTAN



SUCCESSFUL FLIGHT TESTS

LENGTH	27 FEET
DIAMETER	4.5 FEET
RANGE	APPROX. 25 MILES

SPRINT

SUMMARY

SENTINEL/SAFEGUARD FUNDING
(\$ in Millions)

	<u>FY 68</u> <u>APPROVED</u> <u>PROGRAM</u>	<u>FY 69</u> <u>APPROVED</u> <u>PROGRAM</u>	<u>FY 70</u> <u>TOA</u>	<u>FY 70</u> <u>NOA</u>
RDT&E	383.9	311.5	400.9	400.9
PEMA	137.9	330.6	360.5	345.5
MCA	55.2	183.0	97.1	14.1
O&MA	10.3	30.3	23.2	23.2
MPA	4.1	6.0	9.8	9.8
TOTAL	591.4	861.4 ^{1/}	891.5 ^{1/}	793.5 ^{1/}

^{1/} \$98M of difference from SENTINEL to SAFEGUARD available as carry-over to reduce FY 70 TOA of \$892M to \$794M NOA.

	<u>SAFEGUARD ROTE</u> (\$ in Millions)			
	<u>FY 68</u>	<u>FY 69</u>		<u>FY 70</u>
APPROPRIATED	411.9	312.9		
REQUESTED NOA	-	-		400.9
	<u>APPROVED PROGRAM</u>	<u>APPROVED PROGRAM</u>	<u>REQUIRED TCA</u>	<u>REQUESTED NOA</u>
PROGRAM TOTALS	<u>383.9</u>	<u>311.5</u>	<u>400.9</u>	<u>400.9</u>
WEAPON SYSTEM CONTRACT	330.2	251.1	318.6	318.6
SYSTEM SUPPORT	28.2	26.4	28.4	28.4
TEST SUPPORT	12.6	24.0	40.7	40.7
SAFSEA	1.9	10.0	13.2	13.2
REENTRY MEASUREMENTS PROGRAM	11.0	-	-	-
	<u>OBLIGATED BY END FY 69</u>	<u>OBLIGATED BY END FY 69</u>		
OBLIGATION TOTALS	<u>383.9</u>	<u>310.6</u>		

CHART 7

SAFEGUARD PEMA
(\$ in Millions)

	<u>FY 68</u>	<u>FY 69</u>	<u>FY 70</u>	
APPROPRIATED	269.0 ^{1/}	342.7 ^{2/}	-	
	<u>APPROVED PROGRAM</u>	<u>APPROVED PROGRAM</u>	<u>REQUIRED TOA</u>	<u>REQUESTED NOA</u>
PROGRAM TOTALS	<u>137.9^{1/}</u>	<u>330.6^{2/}</u>	<u>360.5^{2/}</u>	<u>345.5^{2/}</u>
SPRINT	3.2	8.4	26.5	25.4
SPARTAN	5.9	22.8	76.6	73.3
GROUND EQUIPMENT	101.4	252.2	249.3	238.7
PRODUCTION BASE SUPPORT	27.4	47.2	.8	.8
REPAIR PARTS	-	-	4.0	4.0
COMMUNICATIONS	-	-	3.3	3.3
	<u>OBLIGATED BY END FY 69</u>	<u>OBLIGATED BY END FY 69</u>		
OBLIGATION TOTALS	<u>132.7</u>	<u>314.2</u>		
AMOUNT OF CARRY-OVER	<u>0</u>	<u>15.0</u>	<u>0</u>	

- ^{1/} Approved DOD program for FY 68 is \$137.9M. Congress appropriated \$269.0M for NIKE-X deployment. Since deployment was not initiated at the beginning of the fiscal year, only \$137.9M was needed. During FY 69 hearings, the Congress authorized the NIKE-X PEMA funds remaining from FY 67 and FY 68 to be reprogrammed.
- ^{2/} The OSD approved FY 69 program for SENTINEL was \$345.6M. The OSD approved FY 69 program for SAFEGUARD is \$330.6M, thus providing \$15.0M carry-over to apply to FY 70 total obligational requirements of \$360.5M, leaving a new obligational requirement of \$345.5M.

CHART 8

SAFEGUARD MCA
 (\$ in Millions)

	<u>FY 68</u>	<u>FY 69</u>	<u>FY 70</u>	
APPROPRIATED	81.4	263.3 ^{1/}	-	
REQUESTED NOA	-	-	14.1	
	<u>APPROVED</u>	<u>APPROVED</u>	<u>REQUIRED</u>	<u>REQUESTED</u>
	<u>PROGRAM</u>	<u>PROGRAM</u>	<u>TOA</u>	<u>NOA</u>
PROGRAM TOTALS	<u>55.2</u>	<u>183.0</u>	<u>97.1</u>	<u>14.1</u>

^{1/} The OSD approved FY 69 program for SENTINEL was \$266.0M. The OSD approved program for SAFEGUARD is \$183.0M, thus providing a \$83.0M carry-over to apply to FY 70 TOA of \$97.1M, leaving NOA of \$14.1M.

CHART 9

SAFEGUARD OMA
(\$ in Millions)

	<u>FY 68</u>	<u>FY 69</u>	<u>FY 70</u>	
APPROPRIATED	18.0	39.0	-	
REQUESTED NOA	-	-	23.2	
	<u>APPROVED PROGRAM</u>	<u>APPROVED PROGRAM</u>	<u>REQUIRED TOA</u>	<u>REQUESTED NOA</u>
PROGRAM TOTALS	<u>10.3</u>	<u>30.3</u>	<u>23.2</u>	<u>23.2</u>
PERSONNEL COSTS	6.8	18.4	16.3	16.3
LEASES	.4	1.2	2.1	2.1
CONTRACTS	3.1	10.7	4.8	4.8
	<u>OBLIGATED BY END FY 69</u>	<u>OBLIGATED BY END FY 69</u>		
OBLIGATION TOTALS	<u>6.5</u>	<u>29.2</u>		

SAFEGUARD MPA
(\$ in Millions)

	<u>FY 68</u>	<u>FY 69</u>	<u>FY 70</u>	
APPROPRIATED	-	6.0	-	
REQUESTED NOA	-	-	9.8	
	<u>APPROVED</u>	<u>APPROVED</u>	<u>REQUIRED</u>	<u>REQUESTED</u>
	<u>PROGRAM</u>	<u>PROGRAM</u>	<u>TOA</u>	<u>NOA</u>
PROGRAM TOTALS	4.1	6.0	9.8	9.8

NOTE: MPA is an open allotment appropriation centrally controlled and managed at HQ, DA. The approved program for SAFEGUARD represents that portion of the total appropriation estimated to be required to cover pay and allowances of SAFEGUARD military personnel based on Army wide average cost factors. Actual expenditures are not controlled by individual commands or activities.

CHART 11

MILITARY CONSTRUCTION FUNDS

Mr. MAHON. General, thank you for your statement. In view of the fact that you were talking about MCA, meaning Military Construction, Army, I think it well to point out that we are pleased to have this information about the carryover funds, some \$83 million, give or take, from the prior fiscal year and the fact that you will be asking and are asking for \$14.1 million of new funds for military construction, that part of this program will be handled by the Military Construction Subcommittee. We will get into detail on that later. Mr. Sikes is the chairman of that subcommittee.

General STARBIRD. Right, sir. I merely put in that paragraph to balance the total statement.

Mr. MAHON. I think it is all right.

Mr. SIKES. It may be well at this point for continuity of the record if we have a breakdown of the construction simply submitted as a chart for the record.

General STARBIRD. I shall do that, Mr. Sikes.
(The information follows:)

SAFEGUARD MCA

(Dollars in millions)

	Fiscal year			Requested, NOA
	1968	1969	1970	
Appropriated.....	81.4	1263.3		
Requested, NOA.....				14.1
	Approved program		Required, TOA	Requested, NOA
Program totals.....	55.2	183.0	97.1	14.1
Design.....	25.1	26.5	14.1	1.4
Construction.....	16.7	152.0	60.5	
Access road.....	0	4.5	9.8	
R. & D. support.....	13.4	0	12.7	12.7
	By end of fiscal year 1969			
Obligations totals.....	41.9	.1		
Amount of carryover.....	13.3	182.9		0

¹ The Office of the Secretary of Defense approved fiscal year 1969 program for Sentinel was \$266,000,000. The Office of the Secretary of Defense approved program for Safeguard is \$183,000,000 thus providing a \$83,000,000 carryover to apply to fiscal year 1970 TOA of \$97,100,000 leaving NOA of \$14,100,000.

EFFECT OF CANCELING DEPLOYMENT

Mr. MAHON. Mr. Sikes and I were discussing, prior to this hearing, a question which we think might be well to ask at this moment. That is, what will be the loss in time and money if ABM is not carried forward at this time? As you know, there are those who say that moving forward in accordance with the budget plan with the ABM Safeguard system is premature. They say that the system should be further researched in order that the actual deployment could be approached with greater confidence, and so forth.

Now, what would be the effect of our action, an action by the Congress or by the administration stopping the program as outlined?

General STARBIRD. The most normal statement made is that the

deployment itself would stop but research and development would continue. I think that is what you are speaking to.

I can answer the time factor quite simply, sir: If we stopped the deployment effort underway, letting the people that have been trained and are engaged, even if a decision were to be made within a very few months to go ahead again, the deployment of the first two sites would be delayed approximately 2 years.

In other words, the first site would become operational not in early 1974 but would be delayed until early 1976.

Now, of course, that is 2 years and that could be prolonged for a much longer period of time if the decision to go back to deployment were made, say, a year and a half or 2 years from now.

It takes us about a year to remobilize, to retrain the people and to get them back engaged in effective production and to get them back and get them onsite starting effective construction so that the facilities can be ready to receive the equipment when that is completed.

Now, in funds, sir, it is a little more difficult to answer because we would have to take each of the items as of the time of stopping and go out and negotiate and see how far we had gone. This would apply not only to the prime contractor and the first tier subcontractors but to all the vendors that had received purchases.

Our obligations through April 30, the latest date I have, for PEMA are \$433 million. Some major portion of that would be lost effort, sir.

PRACTICALITY OF DELAYING DEPLOYMENT

Mr. MAHON. Do you think it makes sense, General—you have been associated with this program and related programs for a long time. Now, do you think it makes sense from some standpoints to delay the deployment, to proceed with research, even though there would be quite a hiatus as between your schedule now and what would become your schedule?

General STARBIRD. No, sir, it does not to me, make sense, if the objective is to acquire an increased capability through a very short period like a year or so's added R.D.T. & E.

After all, we have carried the preparations for this deployment to a rather advanced state as compared with many other of the deployments or decisions to produce or deploy.

In part, this is due to the fact that we did start a program directed toward the sentinel deployment. We started that back in October of 1967. We intensified our research, we intensified our development.

Now, looking at possibilities of change in the system, you have to look at them from two separate categories. First, would there, through a year or two's added R.D.T. & E., come along an entirely different design? To me, looking at this for a year and a half roughly, I do not see that. In other words, we have carried the design and capability to a very advanced point, considering what the state of the art can now do for us.

Now alternatively, the second thing to think of is, have we made provision in this deployment for things that would permit us to improve if the threat became heavier than has been discussed for the mid-1970 period? The answer to that is "Yes." We have made two basic provisions for this.

First, we are developing an ——— able to do. So in each of our ——— we are building the large concrete structure so that if we need to in the future we can put ———. In other words, it, too, can be phased into the program.

So, Mr. Chairman, I have answered from the technical point of view:

From the practical point of view if we reverted to R.D.T. & E. there would be much funding lost, as the chairman has already brought out.

Now, I won't try to cover the matter of relationship to the threat or relationship to strategic arms limitation negotiation unless you desire, Mr. Chairman.

Mr. SIKES. No, I don't think that is necessary at this time.

It would appear that this program, having been in the R.D.T. & E. stage for a considerable period of time, is ripe for progressing into the deployment and operational stages and that further delays would not only be costly but they would, in considerable measure, frustrate the accomplishments to date. Is that overstating the case?

General STARBIRD. No; I think you have hit upon a very, very important point, Mr. SIKES. The people who have been engaged in this program and have come to a point of starting a deployment; now, should that deployment now be stopped, I think many of them would wonder whether it would ever be started again and consequently you would have a frustration, in part, with them, a question in the sense of whether they would stay with the program.

ADMINISTRATIVE MANAGEMENT OF SAFEGUARD PROGRAM

Mr. SIKES. The committee would like for you to describe in some detail the administrative management of the Safeguard anti-ballistic-missile system program.

We note that within the Safeguard organizational structure there have been established several agencies, offices, commands, and facilities, such as (1) the Safeguard Systems Command, (2) the Safeguard systems office, (3) the Safeguard System Evaluation Agency, (4) the Safeguard Logistics Command, (5) Safeguard Central Training Facility, (6) various Safeguard operations within the Strategic Communications Command and the Air Defense Command.

If I am not mistaken, you have a rather sizable missile system headquarters in Huntsville. There is another significant headquarters-type activity at White Sands Missile Range. I am sure there is also a certain amount of headquarters-type activities performed in the Pacific islands.

Now, with that background, this means very considerable overhead, a very large team. What type of administrative management system is being used and what does it cost?

General STARBIRD. I would like to take each of those commands and only give about two sentences to give the basic structure.

Mr. SIKES. Let me pose two additional subquestions because you may want to touch on all of them rather broadly.

General STARBIRD. Very well.

Mr. SIKES. The first was: What type of administrative management system is being used and what does it cost?

Second. Would you distinguish between the administrative management of the development and deployment on the one hand, and the operational command and control on the other hand?

The third subquestion is: Why was it necessary to establish all of these agencies, offices, commands, or facilities in support of the Safeguard operation?

General STARBIRD. Let me take it in order, sir. The basic structure of management that is being carried out or exerted in this program is the normal Department of Defense and Army system of management. This is one whereby the program in detail is submitted and reviewed. Departures there from have to be approved at OSD and Secretary of the Army level.

However, in addition to that, and like some other major programs such as the Polaris program and some of the Air Force programs, the Army saw fit in November of 1967 to establish a single manager, a single manager who reported directly to the Secretary of the Army and the Chief of Staff, and was responsible for effectiveness in management. He also had a responsibility for accomplishing at General Staff level the coordination that was necessary to insure that the program was carried out. He was given a small structure of his own, basically to carry out planning and to exert control over the contractors. And he was authorized to task other organizations of the Army, such as the Continental Air Defense Command, the Strategic Army Command, to insure that work was done by them necessary to the system and without creating a duplicate organization.

Let me take the various organizations briefly.

WASHINGTON OFFICE

Now, personally, in the Washington area I have a small office of 102 individuals. Those individuals assist me in directing the program, in accomplishing coordination and approvals with the Department of Defense and the Department of the Army. I, however, do not have a large number of technical and management people here. We are basically an overseeing organization, but, I might state, a very closely watching overseeing agency.

MAIN COMMAND

My main command is one in Huntsville, Ala., that you spoke of. It is the Safeguard System Command. It is a command of around 1,000 people. It accomplishes the details of planning under my general direction. It accomplishes the supervision and inspection of all contract effort. It does our cohesive planning with the other elements of the Army.

EVALUATION AGENCY

The only other organization that I have under my direct command is the Safeguard System Evaluation Agency. Actually, it was not created for Safeguard. It took over two smaller agencies that were watching the development program at an earlier date. This is an organization of about 400 persons. They go to all our tests. They observe the

contractors' tests. Under my direction, they examine anything that I think is possibly going to cause trouble. They mainly are in the technical side. They are somewhat, though, in the cost and cost-tradeoff side to assist me in getting an independent evaluation of what is being done and what could be done.

CENTRAL TRAINING FACILITY

You spoke of the central training facility. Under the Continental Army Command, substantially all training for the Army is accomplished. They have no permanent facility and only a nucleus of personnel right now. To train the various specialists that we need for this program, the central training facility is a facility created under my direction by the Continental Army Command commander to accomplish this purpose.

COMMUNICATIONS

Communications are particularly critical to this program. As an example, some of the technical communications cannot be interrupted for more than ———.

Now, we do not intend to build separate communications for this system. The communications will be furnished by the large industrial communications system base that we have in this country and rather than create a separate organization to plan, supervise, raise that communications, even to operate that communications, I called upon the Strategic Army Communications Command to do this. So they have a definite function in this regard.

LOGISTICS

You asked about the Safeguard Logistics Command. This is an organization operating under the Army Materiel Command. It is the organization that will accomplish off-site maintenance and supply for our equipment once it is deployed.

An element of that agency is now mobilized doing the planning for that later test, so that we will not have to come in late in the game and try to scramble at high costs to create good logistics support set-up. I have forgotten the exact numbers of persons that they have, but I think it is about 270 personnel.

I think I have answered the question, sir. But I will recheck in the record and insert, have I missed any.

(The additional information follows:)

(a) The administrative management system being used is the system/project manager system as outlined in DOD directive 5010.14, dated May 4, 1965. The Safeguard System Manager (SAFSM) has under his immediate command the Safeguard System Office (SAFSO), the Safeguard System Command (SAFS-COM) and the Safeguard System Evaluation Agency (SAFSEA). These three organizations form the safeguard system organization and together provide centralized management of the development and deployment of the Safeguard system. The Safeguard Logistics Command (SAFLOG), an element of the Army Materiel Command and the U.S. Army Engineer Division, Huntsville (USAEDH), an element of the Office of the Chief of Engineers have been placed under the operational control of the Safeguard System Manager. The Continental Army Command, the U.S. Army Strategic Communications Command, and the U.S. Army Air Defense Command provide support for the Safeguard system. The operational cost of the Safeguard system organization will be \$18.2 million for fiscal year 1969.

(b) The SAFSM is charged with the development and deployment of the Safeguard system. Once the system has been deployed, it will be turned over to the Continental Air Defense Command for operational command and control of the deployed BMD system.

(c) To provide the complex support required by the Safeguard system, the commanders of the agencies identified as "participating organizations, not part of the system/project management office" in the system charter have organized elements of their commands to provide "complementary support such as operational testing, personnel training, activation, or deployment" to the system manager as directed in DOD directive 5010.14. This resulted in the establishment of the U.S. Army Engineer Division, Huntsville, the Safeguard Logistics Command, Safeguard Central Training Facility and the various Safeguard operations within the strategic Communications Command and the Air Defense Command. The Safeguard System Office, the Safeguard System Command, and the Safeguard System Evaluation Agency are the organizational elements of the Safeguard System Manager's Office.

NEED FOR EXTENSIVE TRAINING PROGRAMS

Mr. SIKES. The committee is puzzled by the organizational requirements, personnel requirements.

Let me approach it from this direction: In the anti-aircraft programs, which are similar in many respects, there are extensive training facilities and training procedures. Were these utilized at all in establishing the Safeguard offices and training programs?

General STARBIRD. They definitely are, sir. There is an Army air defense training center which is located at Fort Bliss. The Safeguard Central Training Facility is an element of that center. We have run extensive investigations to insure that we phase, that we use the facilities that could be made available from that center and elsewhere for Fort Bliss. We are using the same basic command structure over it and we are using the same people to the degree possible for instruction.

Now, many of the people that we use are not specialists unique to the Safeguard type of deployment. Those individuals will be trained in the normal Army training centers. MP's are an example, and the administrative staffs. It is only those that are unique by qualification to this particular system that will be trained in the central training facility.

The central training facility and the manpower to operate that facility are scaled to that training of unique personnel.

CONTROL OF STAFFING

Mr. SIKES. It seems inherent in practically all operations of Government, including those of Congress, that a system which has been in existence for a number of years tends to grow and to accumulate more people than are essential. What do you do, what have you done to prevent that occurrence in the Safeguard system?

General STARBIRD. I could tell you what I have done and what I intend to do, sir.

When the Sentinel requirement came in—and I am talking about Sentinel—shortly after I came into my office, the personnel requirements as submitted to me appeared excessively high. I actually got in the commander or the deputy to the commander, the appropriate deputy to the commander, and I went over space by space every one of the spaces that was concerned. It was a long and a time-consuming

activity but through this means we screened back radically the numbers that were required.

Now, as you may have noted in my testimony, sir, the O. & M.A. setup for 1970 under the Sentinel program would have been \$60.2 million. Only a portion of that was for personnel. The presently stated requirement is \$23.2 million. In fact, in that screening it was even more rigid and the \$23 million and the numbers carried by that \$23 million are the bare minimum to carry out the program.

Mr. SIKES. Well, the program is being reduced. Now, why is it necessary that 1,290 military personnel be assigned during fiscal 1970 at an estimated cost of \$9.8 million for the various operations?

General STARBIRD. The major portion of those are already assigned, Mr. Chairman.

INCREASE IN STAFFING

Mr. SIKES. There is an increase, by 306, in fiscal 1970 and that is difficult to understand, in view of the reductions in the program.

General STARBIRD. About 25 of those are in the Safeguard System Command; that is, the agency in Huntsville, Ala. They are largely ones that are connected with the inspection and carrying out of the testing connected with the bringing in of the elements for the sites.

About 60 are in the Army Air Defense Command. That is a headquarters that I did not mention. It is the one that operationally will take over these sites, and it is preparing, conducting the analyses, and assisting me with the preparations for the deployment that will come.

Fifty are in the Strategic Communications Command. They had just started their activities. These will be the minimum numbers to carry on the planning and analysis and some of the initial operation of the administrative communications sites which must go in.

In the Continental Army Command, largely in the training facilities, the increase is by a total of 65. These are to pick up the others that are coming in for training prior to deployment to sites.

As you realize, Mr. Chairman, a large number of these must reach the sites about 15 months before deployment.

I have covered a large number of those, sir. I can insert the details in the record, if you wish.

Mr. SIKES. All right.

(The information follows:)

INCREASES IN MILITARY AUTHORIZED END STRENGTH

	Fiscal year 1969	Fiscal year 1970	Change
SAFSO.....	32	32	
SAFSCOM.....	98	121	+32
SAFSEA.....	145	159	+14
ARADCOM.....	238	293	+55
STRATCOM.....	110	160	+50
CONARC (SAFCTF).....	295	360	+65
SAFLOG.....	32	112	+80
Corps of Engineers (USAEDH).....	34	53	+19
Total.....	984	1,290	+306

Note: The fiscal year 1970 authorization represents the minimum required to provide for a planned phased building toward operational status. This end strength reflects a military-civilian mix of about 1:2 which is appropriate to insure flexibility inherent in assignment of military personnel and yet maintain civilian continuity.

TRANSFER OF PERSONNEL TO SAFEGUARD

Mr. MICHAELS. Going back to one of the points you mentioned, I think you said 50 spaces in the Air Defense Command.

General STARBIRD. Right.

Mr. MICHAELS. Hasn't the Air Defense Command been gradually reducing? Is it not phasing down as the number of batteries are being phased out?

General STARBIRD. Let me make clear, sir, what this listing of personnel is and accomplishes. These are the persons who are doing work connected with this system. In many cases they are individuals who are doing other work earlier. But our stated requirements are for the full numbers that are on the Safeguard program.

I will determine and insert in the record, should you like, a statement as to the numbers of the increase that are expected to come from Hercules or other type activity which is decreasing.

Mr. MICHAELS. And where they are costed, because the implication here is that this represents additional people being charged to the Safeguard program. If they are in fact the same people who are already there, is there a reduction in some other command?

General STARBIRD. Right. I would have then to go clear back, and I will get as much as I can on the overall situation, but what the military personnel requirement is that is shown is the numbers of personnel actually working on Safeguard multiplied by the Army-wide dollar factors that apply.

Mr. MICHAELS. Are you saying, then, the numbers used here are program numbers and do not necessarily relate to the budget?

General STARBIRD. No. I think the total of this and all other programs would make up the same sum as is included in the budget. I am saying that in the over-all budget number we are allocated so many personnel for the duties that we have to perform, and the costs which are shown are those which are a-factor times that number.

(The information follows:)

There has been a gradual reduction in the strength authorized the Air Defense Command concomitant with the number of air defense batteries deactivated. Spaces from Armywide activities, including Hercules, have been reprogrammed to Safeguard in consonance with DOD approved Safeguard manpower requirements or have been authorized to the Army by OSD from other than Army sources. It is impracticable to actually trace the paths of individual spaces because of the vast number involved and constantly changing requirements. However, 47 spaces have been identified as having been reprogrammed from ARADCOM to the Safeguard program for fiscal year 1970 requirements.

CIVILIAN EMPLOYMENT

Mr. SIKES. How many civilian personnel does the system employ?

General STARBIRD. I think it is 2,347, sir.

Mr. SIKES. Provide for the record the numbers by appropriation.

General STARBIRD. I can do that, sir.

(The information follows:)

The system employed a total of 2,347 full-time civilian personnel in permanent positions as of May 31, 1969 in the following appropriations:

Appropriation:	<i>Number employed</i>
O. & M.A. -----	1,255
R.D.T.E. -----	521
MCA -----	348
AIF -----	223
Total -----	2,347

Mr. SIKES. Will you employ additional civilian personnel in fiscal 1970?

General STARBIRD. I think there is a slight reduction, sir. I would like to give that for the record.

Yes, from a planned 2,433 reducing to 2,283.

Mr. SIKES. Is this a realistic reduction in view of the overall reduction in the program?

General STARBIRD. I think so, sir. The initial number planned for fiscal year 1970 was much larger for the larger program.

Mr. SIKES. I would like to have for the record a schedule showing the number of civilian personnel employed, by appropriations, for fiscal years 1968, 1969, and the estimate for 1970.

General STARBIRD. I will provide that.

(The information follows:)

AUTHORIZED CIVILIAN END STRENGTH

Appropriation	Fiscal year 1968 ¹	Fiscal year 1969	Fiscal year 1970
OMA -----	650	1,291	1,209
RDTE -----	399	556	467
MCA -----	273	367	388
AIF -----	54	219	219
Total -----	1,376	2,433	2,283

¹ Operating (on board) strength as of June 30, 1968.

ADP MANAGEMENT SYSTEMS

Mr. SIKES. How many ADP management systems are being used within the Safeguard command structure?

General STARBIRD. There is one, sir.

Mr. SIKES. Provide a description for the record.

(The information follows:)

There is only one ADP management system being used within the Safeguard Command structure. The computer is located at the Safeguard System Command headquarters at Huntsville, Ala., and the system is referred to as the Safeguard management information system (SMIS).

Mr. SIKES. Will any new systems be established in fiscal year 1970?

General STARBIRD. While we are procuring additional ADP for the operational sites, sir, no new ADP management systems will be installed.

RENTAL OF MANAGEMENT SYSTEM ADP EQUIPMENT

Mr. SIKES. I would like the total amount being requested for fiscal 1970 for the rental of ADP equipment for management of the Safeguard system.

(The information follows:)

The total amount being requested for the rental of ADPE for management of the Safeguard system is 1.440 million.

(Broken down:)

Safeguard System Command:

O. & M.A.....	1.410
PEMA.....	.030

Total.....	1.440
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Mr. SIKES. I would like prepared for the record a schedule showing the amount obligated, by appropriations, for fiscal years 1968, 1969, and estimated 1970, for the rental or purchase of ADP equipment in support of the management of the Safeguard system.

(The information follows:)

The following is a schedule showing the amount obligated by appropriations for fiscal years 1968, 1969 and the estimate for fiscal year 1970 for the rental or purchase of ADPE in support of the Safeguard management information system:

I—RENTALS

Appropriation	Obligated (millions of dollars)	Fiscal year
PEMA.....	0.200 (Western Electric Co.).....	1968
	0.030 (SAFEGUARD System Command).....	
O. & M.A.....	0.244 (SAFEGUARD System Command).....	1969
O. & M.A.....	1.410 (SAFEGUARD System Command).....	1970

II—PURCHASES (1 ADPE PURCHASE WAS MADE BY WESTERN ELECTRIC CO. AS FOLLOWS:)

PEMA.....	0.292.....	1969
PEMA.....	0.292.....	1970

¹ Estimated.

Mr. SIKES. Will there be or is there now a Safeguard ADP management command?

General STARBIRD. There is no ADP management command as such, sir. Every one of our systems established for management, however, must be approved by the Comptroller of the Army and his organizational review set-up for ADP systems.

COMMUNICATIONS

DEDICATED COMMUNICATIONS SYSTEM

Mr. SIKES. Last year and in the original budget request for fiscal year 1970, you proposed the establishment of a special dedicated communications system for Safeguard. Considering the changes in the system, do you still intend to establish a dedicated Safeguard communications system?

General STARBIRD. Only where the general-purpose systems do not adequately meet the requirements, sir. We are actually establishing a

system that is partly integrated with the defense communications system and partly an extension of it.

Mr. SIKES. Will you provide additional information on that for the record?

General STARBIRD. Will do, sir.
(The information follows:)

Safeguard communications plans are based on leasing the majority of the services required from the common carriers through the DCS. Safeguard must procure its own encryption devices since these are not supplied by the carriers. Funds for extensions from the existing common carrier routes to the Safeguard sites will be provided by Safeguard. These routes will actually become part of the DCS. Within these services Safeguard will have some dedicated circuits in order to provide the speed of service, bandwidths, and reliability needed by the weapons system. These cannot be met within the existing common user facilities of the DCS.

ROSSLYN COMMUNICATIONS FACILITY

Mr. SIKES. Why is it necessary to install a special telecommunications facility for the Safeguard headquarters in Rosslyn?

General STARBIRD. We have there a very small communications center. As far as I know—and I checked this the other day—we are the only organization in the building that has one. We, of course, are not adjacent to or next to main communications facilities. It is a very small center to handle our classified and unclassified traffic. We handle some other traffic that is in that building now and may handle more depending upon the outcome of a study currently being conducted.

Mr. SIKES. What are they?

General STARBIRD. There is a large number, sir. We have a part of two floors of a 12-floor building. As far as I know, the only commercial organization in there occupies about one floor.

COMMUNICATIONS COSTS

Mr. SIKES. What is your estimated total communications cost for fiscal year 1970?

General STARBIRD. I will have to give that for the record.

Mr. SIKES. And give us some estimate of the projection for future years.

General STARBIRD. The average for future years after phase I becomes operational is around \$6 million a year, sir.

(The information follows:)

The projected estimated cost of Safeguard communications for the two sites in phase I is as follows:

[Dollars in millions]

OMA:

Fiscal year 1970.....	2.494
Fiscal year 1971.....	12.029
Fiscal year 1972.....	7.841
Fiscal year 1973.....	5.661
Fiscal year 1974.....	5.748

PEMA:

Fiscal year 1970.....	8.800
Fiscal year 1971.....	.500

STUDIES ON PERSONNEL AND EQUIPMENT REQUIREMENTS

Mr. SIKES. For the record, tell us what type of manning and equipment requirement studies will be financed with O. & M. funds in fiscal year 1970, and how much this will cost.

(The information follows:)

In fiscal year 1970, it is estimated that \$600,000 O. & M. funds will be required to finance studies on manning and equipment requirements. These studies will consider personnel and equipment requirements at the tactical sites with a view to determining trade off and the fixing of functional responsibilities at the tactical sites.

FUNDS FOR SAFEGUARD

REPROGRAMING ACTION

Mr. SIKES. When the Secretary of Defense testified before the committee last May 22, he provided a table comparing the amount of funds obligated in fiscal years 1968 and 1969 with the approved program and the amount appropriated.

In fiscal year 1968 Congress appropriated a total of \$766.9 million, which included \$401.3 million for Nike X engineering development applicable to the Sentinel system. The approved program for fiscal year 1968, however, was only \$591.4 million. For what purpose will the remaining \$365.6 million from fiscal 1968 funds be used?

General Starbird. Sir, the approved program of \$591 million represents the total made available to us. There are two other large sums of money involved. One is about 131 million, which was fiscal year 1968 PEMA funding that was not required because the initial Sentinel deployment started later than planned. This was reprogramed by a formal action of last year.

The remaining sum, around \$26 million, as I remember it, in fiscal year 1968 MCA, was also funding not required in that year because we did not start the deployment as early as expected. That also was withdrawn from us.

Mr. SIKES. Congress appropriated \$963.6 million in fiscal year 1969, and the currently approved OSD program is \$861.2 million. What use is to be made of the remaining \$102.4 million from fiscal 1969 funds?

General STARBIRD. \$98 million of it, sir, is in MCA and PEMA which will be carried over and applied against the total obligational authority of the next year. \$3 million of it, as I remember, is O. & M.A., which lapses due to the fact that these are 1-year funds.

Mr. SIKES. I would like to have for the record a table showing how the unprogramed funds were applied, identifying the programs, projects, or items of equipment for which any of these funds were reprogramed.

General STARBIRD. We will prepare a statement on that, sir.

(The information follows:)

SAFEGUARD, FISCAL YEAR 1968 FUNDING PROGRAM

(In millions of dollars)

	Appropriated	Reprogramming	OSD approved program
RDTE.....	1 411.9	² -28.0	³ 383.9
PEMA.....	269.0	⁴ -131.1	137.9
MCA.....	81.4	⁵ -26.2	55.2
OMA.....	18.0	⁶ -7.7	10.3
MPA.....		⁷ +4.1	4.1
Total.....	780.3	-188.9	591.4

¹ Includes \$401,300,000 transferred to SENTINEL by OSD from NIKE-X basic development.² Net amount derived from carrying forward \$12,000,000 of fiscal year 1967 NIKE-X funds attributable to the SENTINEL program, OSD reprogramming \$15,000,000 attributable to NIKE-X advanced development to that program, and \$25,000,000 was reprogrammed to OMA (\$411,900,000 + \$12,000,000 - (\$15,000,000 + \$25,000,000) = \$383,900,000).³ Includes \$361,300,000 transferred to SENTINEL by OSD from NIKE-X basic development.⁴ This is a net amount, \$153,500,000 of fiscal year 1967 funds appropriated to support NIKE-X were carried forward to increase funds available to SENTINEL to \$422,500,000. During the fiscal year 1969 budget hearings, the Congress reprogrammed the \$153,500,000 plus \$131,100,000 of the \$269,000,000 for a total of \$284,600,000 to meet other requirements, e.g., Southeast Asia.⁵ This is a net decrease derived from a \$21,100,000 increase in planning/design funds and a decrease of \$47,300,000 in construction funds reprogrammed by OSD.⁶ Reprogrammed by Army to reduce the fiscal year 1968 supplemental budget request.⁷ Reprogrammed by OSD within the MPA appropriation total based on pay and allowance requirements at average man-year rates to support military personnel approved for the SENTINEL program.

SAFEGUARD FISCAL YEAR 1969 FUNDING PROGRAM

(In millions of dollars)

	Appropriated	Reprogramming SENTINEL	SENTINEL program ¹	Reprogramming SAFEGUARD	SAFEGUARD program
RDTE.....	312.9	² -1.6	311.3	⁴ +0.2	311.5
PEMA.....	342.7	³ +2.9	345.6	⁵ -15.0	330.6
MCA.....	263.3	⁷ +2.7	266.0	⁸ -83.0	183.0
OMA.....	39.0	⁹ -5.7	33.3	¹⁰ -3.0	30.3
MPA.....	5.7	¹¹ +.3	6.0		6.0
Total.....	963.6	-1.4	962.2	-100.8	861.4

¹ The amounts requested in the January budget request.² The amounts requested in the April revised budget request.³ Reduction in R. & D. funded manpower authorized SENTINEL by OSD.⁴ Reprogrammed by OSD from prior-year NIKE X funds to cover increased civilian salary rates which became effective July 1, 1969.⁵ This net increase results primarily from several OSD-directed program adjustments.⁶ Deferred by OSD pending congressional approval of fiscal year 1970 program. If approved, carryover will reduce fiscal year 1970 NOA by \$15,000,000.⁷ This is a net increase by OSD derived from a \$5,100,000 in planning/design funds carried over from fiscal year 1968 offset by a \$2,400,000 decrease in OSD-approved construction funds.⁸ Deferred by OSD pending congressional approval of fiscal year 1970 program. If approved, carryover will reduce fiscal year 1970 NOA by \$83,000,000.⁹ Army's availability of OMA was reduced by OSD. The \$5,700,000 reduction was subsequently used by OSD to reduce the Army's request for fiscal year 1969 supplemental funds.¹⁰ Army's availability of OMA was reduced an additional \$3,000,000 by OSD. This amount was subsequently used to further reduce the Army's request for fiscal year 1969 supplemental funds.¹¹ Increased allocation to SENTINEL within total Army MPA appropriation to cover personnel costs at then current man-year rates.

FUNDS FOR KWAJALEIN, GRAND FORKS AND MALMSTROM

Mr. SIKES. How much of your Safeguard program for fiscal years 1968, 1969, and 1970 will be utilized at Kwajalein? Do you wish to provide that for the record?

General STARBIRD. I would like to, sir. I will cover only the support items, sir. Of course, as you realize, all the missile firings are chargeable. I think the question is directed at how much support cost, is that correct, sir?

Mr. SIKES. Yes. I would like to know how much is programmed for each of the two Safeguard sites and, in each instance, for all appropriations.

General STARBIRD. All right, sir.
(The information follows:)

SAFEGUARD PROGRAM UTILIZED AT KWAJALEIN

(In millions of dollars)

	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
RDTE, A.....	29.9	18.6	20.1
MCA.....	13.4		12.7
Total.....	43.3	18.6	32.8

FUNDS PROGRAMED FOR DIRECT SITE COSTS FOR THE FIRST 2 SITES (ESTIMATED)

(In millions of dollars)

	Grand Forks			Malmstrom		
	1968	1969	1970	1968	1969	1970
PEMA.....	33	66	91	15	40	45
MCA.....	27	152	1	1	17	52
Total.....	60	218	92	16	57	97

UNEXPENDED BALANCES

Mr. SIKES. Please provide a table showing the anticipated unexpended balances for fiscal years 1968 and 1969 at the beginning and at the end of fiscal year 1970.

(The information follows:)

SAFEGUARD ESTIMATED UNOBLIGATED AND UNEXPENDED BALANCES

(In millions of dollars)

	Approved program	June 30, 1969:		June 30, 1970	
		Unobligated	Unexpended	Unobligated	Unexpended
Fiscal year 1968:					
RDTE.....	383.9		6.5		
PEMA.....	137.9	5.2	52.2		
MCA.....	55.2	13.3	24.0		0.8
OMA.....	10.3				
MPA.....	4.1				
Total.....	591.4	18.5	82.7		0.8
Fiscal year 1969:					
RDTE.....	311.5	.9	151.5		5.0
PEMA.....	230.6	16.4	259.9		74.8
MCA.....	183.0	182.9	183.0		152.7
OMA.....	30.3	1.1	12.2		
MPA.....	6.0				
Total.....	861.4	201.3	606.6		232.5

¹ A total of \$6,500,000 OMA was obligated as of June 30, 1968; the remaining \$3,800,000 was made available to finance other OMA priority requirements which arose during the fiscal year.

² Excludes \$15,000,000 deferred by OSD pending congressional approval of fiscal year 1970 program. If approved carry-over will reduce fiscal year 1970 NOA.

³ Excludes \$83,000,000 deferred by OSD pending congressional approval of fiscal year 1970 program. If approved, carry-over will reduce fiscal year 1970 NOA.

⁴ The unobligated OMA balance of \$1,100,000 was made available to finance other OMA priority requirements which arose during the fiscal year.

⁵ Amount shown unexpended is difference between amount obligated and amount expended at June 30, 1969.

⁶ Excludes \$98,000,000 deferred by OSD pending congressional approval of fiscal year 1970 program. If approved carry-over will reduce fiscal year 1970 NOA.

NIKE-X UNOBLIGATED AND UNEXPENDED BALANCES

Mr. SIKES. Also, I would like provided a schedule showing the anticipated unobligated and unexpended balances on June 30, 1969, for Nike X, by fiscal year, for all appropriations.
(The information follows:)

PROJECTED NIKE-X UNOBLIGATED AND UNEXPENDED BALANCES AT JUNE 30, 1969

[In millions of dollars]

Fiscal year appropriation	OSD approved program	Unobligated	Unexpended
1964, RDTE.....	269.7	0.1	0.2
1965:			
RDTE.....	328.8		.2
MCA.....	15.0	.5	1.2
Total.....	343.8	.5	1.4
1966:			
RDTE.....	389.8	.2	4.1
MCA.....	24.2	.3	.6
Total.....	414.0	.5	4.7
1967:			
RDTE.....	420.7	.4	2.8
MCA.....	31.3	1.8	7.0
Total.....	452.0	2.2	9.8
1968:			
RDTE.....	129.3		.9
MCA.....	5.8	.2	.7
Total.....	135.1	.2	1.6
1969:			
RDTE.....	137.1	26.1	81.7
MCA.....	3.2	3.0	3.2
Total.....	140.3	29.1	84.9
Total:			
RDTE.....	1,575.4	26.8	89.9
MCA.....	79.5	5.8	12.7
Total.....	1,654.9	32.6	102.6

¹ Excludes \$361,300,000 transferred to Sentinel/Safeguard program.

COST OF SAFEGUARD PROGRAM

Mr. SIKES. In view of the current front page interest in military weapons system costs, would you at this point in the record list the current estimate of the cost of the Safeguard antiballistic missile system and, to the extent applicable, show target costs and ceiling costs separately?

(The information follows:)

SAFEGUARD TOTAL PROGRAM COSTS—PHASE I

(In millions of dollars)

Appropriations	OSD-approved program, fiscal year 1968-69	Requested fiscal year 1970	Programed fiscal year 1971-74	Total program, fiscal year 1968-74
R. & D.....	1 695.4	400.9	976.4	2,072.7
Total investment.....	706.7	457.6	948.2	2,112.5
Total operating.....	50.7	33.0	231.1	314.8
Total.....	1,452.8	891.5	2,155.7	4,500.0

¹ Includes \$361,300,000 transferred to Sentinel/Safeguard from fiscal year 1968 Nike X program.

Safeguard development and production contracts are of the cost-reimbursable type and contain a provision which precludes expenditures beyond the target amount in the contract unless properly justified and additional contract funding has been provided. In this vein, target and ceiling cost become the same. There have been minor cost increases (less than 1 percent) for the work performed in the development contract from its initiation in fiscal year 1954 through fiscal year 1969. For that portion of the effort which is on cost-plus-incentive-fee, \$513,000,000 development effort in fiscal year 1968 and 1969, there is a cost-control clause in the contract which provides for a dollar-for-dollar reduction in earned performance and schedule incentives by the amount that actual cost exceeds established target cost in the contract.

COST OVERRUNS

Mr. SIKES. Tell us at this point what your picture is going to be on cost overruns.

General STARBIRD. Of course, we will control cost increases to the maximum degree that we possibly can, sir. A portion of any increase in estimated cost, may be due to increased price levels, and in fact they have occurred even since we made up the present estimates, which was at the turn of the calendar year.

We have a very rigid system, both internally in the Safeguard System Command, in my own office, in the Army, and the Department of Defense as a whole, with respect to the whole. That is being reviewed to see whether added measures need be taken.

We undoubtedly will have some things determined that we do not know at the present time. We hope some of these will be a downward revision as well as an upward revision. However, as I mentioned earlier, we have carried research and development to a fairly advanced state and, therefore, we expect that the occurrences of such major events of this nature should be small.

Mr. SIKES. It would be anticipated, I would assume, because of the nature of the program and the delays which have been encountered in the deployment of the program, delays which were imposed officially rather than necessitated by the progress of the program itself, that you would have had a better control over cost overruns than in a crash program where the emphasis had been on early deployment or early operational capability. However, other than inflationary costs which are beyond your control or the control of any individual in the Department of Defense, what would you assume the cost overrun would have been, percentage-wise, in the R.D.T. & E. phases of the program?

General STARBIRD. The R.D.T. & E. phases, sir, have had a fairly stable set of estimates as long as I have been with the program, with one exception. When the present deployment was decided upon, it cast the earliest site in the 1974 period. It also cast them to different threats than the original Sentinel deployment had been directed toward, particularly the sub-launched threat which you discussed last year, and to the FOBS threat.

This being true, we had to carry out research and development that was not earlier contemplated.

This research and development was largely in three areas. One was in data processing. This added a complexity to our data processing system, not one which cannot be handled, but it still was an addition that the data processor had to handle.

The second was the improved Spartan that I mentioned, something that would let the system transition to an even more advanced threat should that threat develop.

The third was with the improved missile site radar.

Mr. SIKES. Can you provide an estimate of the percentage of cost overruns from these causes?

General STARBIRD. I can provide, sir, what in the programs figures that have earlier been given the committee is for R.D.T. & E. and what percentage of that relates to each of these three.

Mr. SIKES. Would you say that there have not been significant cost overruns, not more than 2 or 3 percent, in those areas which were originally assigned to the mission of the R.D.T. & E. program?

General STARBIRD. No, sir. When you say 2 or 3 percent, I would have to go back and analyze the whole program.

Mr. SIKES. Other than inflationary costs.

General STARBIRD. I would have to go back, sir, and take a look at the whole thing. I am willing to do this.

Mr. SIKES. See what you can do in this way.

General STARBIRD. Yes, sir.

(The information follows:)

(a) There have been minor cost increases (less than 1 percent) for the work performed in the development contract from its initiation in fiscal year 1964 through fiscal year 1969.

(b) The percentage increases in the planned R. & D. program as it was changed from Sentinel to Safeguard amount to about:

	Percentage	
	Fiscal year 1970	Total program
Data processing.....	3.2	2.8
Improved MSR.....	3.4	1.1
Improved Spartan.....	6.8	5.1

COST OF NIKE-AJAX AND NIKE-HERCULES

Mr. SIKES. Pursuing this matter of the present public interest in military weapons systems costs, would you at this point tell us briefly—and insert the full detail in the record—the original cost estimates of the Nike-Ajax antiaircraft weapons system program and the Nike-Hercules weapons system program, as compared with the actual cost of development and production of the weapons systems up to the point of deployment on site? In other words, do not confuse these contract cost comparisons by the addition of operational costs at some point.

General STARBIRD. We have gotten those costs. I did not bring them with me.

Mr. SIKES. Can you discuss it briefly at this point?

General STARBIRD. My recollection is that they were very close, and the same prime contractor was carrying out the systems development and production.

(The information follows:)

Actual costs associated with NIKE-AJAX and NIKES-HERCULES from program initiation through 1968 are:

	NIKE AJAX	NIKE HERCULES
RDTE.....	\$165,900,000	\$148,700,000
PEMA.....	844,700,000	1,751,700,000

Original cost estimates associated with NIKE-AJAX and NIKE-HERCULES are not available because official records covering the periods of development and production of NIKE-AJAX and NIKE-HERCULES (beginning in 1945 and 1953, respectively) have been retired to records holding areas.

It is not possible to determine at this time how long it will take to search the records holding areas to reconstruct these original cost estimates.

APPROPRIATIONS FOR NIKE X

Mr. SIKES. I would also like provided for the record the amount of funds Congress has appropriated for the NIKE X, by appropriation and by fiscal year.

(The information follows:)

FUNDS APPROPRIATED, NIKE-X

(In millions of dollars)

Fiscal year, appropriation	Appropriated	OSD approved program
1964, RDTE.....	245.0	269.7
1965:		
RDTE.....	306.8	328.8
MCA.....	24.7	15.0
Total.....	331.5	343.8
1966:		
RDTE.....	390.0	389.8
MCA.....	24.1	24.2
Total.....	414.1	414.0
1967:		
RDTE.....	431.4	420.7
MCA.....	31.3	31.3
PEMA.....	¹ 153.5	
Total.....	616.2	452.0
1968:		
RDTE.....	² 421.3	³ 390.6
MCA.....	4.4	5.8
Total.....	425.7	396.4
1969:		
RDTE.....	129.0	137.1
MCA.....	3.2	3.2
Total.....	132.2	140.3
Total:		
RDTE.....	² 1,923.5	³ 1,936.7
MCA.....	87.7	79.5
PEMA.....	¹ 153.5	
Total.....	² 2,164.7	³ 2,016.2
Less amount transferred to Sentinel.....	² 401.3	³ 361.3
Net Nike-X total.....	1,763.4	1,654.9

¹ Reprogrammed to Sentinel in fiscal year 1968 by the office of the Secretary of Defense and thereafter reprogrammed by congressional action during fiscal year 1969 budget hearings to support other programs.

² \$401,300,000 of this was transferred to the Sentinel/Safeguard program.

³ \$361,300,000 of this was transferred to the Sentinel/Safeguard program.

Mr. SIKES. Before I get onto missile sites and the breakdown of the various aspects of the program, are there questions at this point?

Mr. LIPSCOMB. No, Mr. Chairman.

Mr. SIKES. Questions on my right?

DEVELOPMENT OF COST ESTIMATE

Mr. WHITTEN. I was curious and have been discussing with my colleague how these cost figures are built up. You have given us large figures compared with the original estimate of what we would spend on the ABM program. How are these figures built up? Can you submit to the committee details which build up to these figures, or has it been decided at the Defense Department level that you can have so much money for this program and you are working backwards?

General STARBIRD. No, it did not work that way, sir. There was a revised deployment. We were called upon to estimate the minimum required in fiscal year 1970, and we were asked to estimate the minimum total required.

We went back to the contractor, who worked with his subcontractors, and took each individual item, attempting to reduce it to the minimum.

In the time available to us, which was a few weeks, we prepared the revised estimates which are here. These are really minimum figures, because we were driving—

Mr. WHITTEN. Minimum from what viewpoint? Minimum for what purpose?

General STARBIRD. Let me take the PEMA and MCA first. Those are two of the large ones. I will come back to the R.D.T. & E.

In the PEMA and MCA areas, they are the minimum to achieve the readiness dates that were given us for the Phase I deployment, of January of 1974 for the first site, and July for the second site.

Mr. WHITTEN. Where do you get your yardstick when you say this is the minimum? Do you base that on prior experience? This is the first time you have gone into actual construction in this area, is it not? What yardstick do you use?

General STARBIRD. We had about a year, sir, of time in which we were engaged in comparable type preconstruction and early production activities and production readiness activities. Our personnel, therefore, in the contractor structure and the architect-engineer area, have established a high degree of familiarity with the situation which they will have to face in carrying out the program.

TOTAL FUNDING REQUIREMENT

Mr. WHITTEN. Mr. Sikes asked you earlier about personnel. In addition to the funds that you ask that we appropriate here for Safeguard, is it contemplated that funds are to be transferred from other activities in the Department or from other branches to you in addition to the sums requested here?

General STARBIRD. No, sir. This is the total requirement for the Safeguard system.

Mr. WHITTEN. Then if you get personnel from some other activity, you expect to pay them from this appropriation?

General STARBIRD. The funds that would be required for those personnel are in here.

Mr. WHITTEN. Thank you.

General STARBIRD. I did not answer with respect to R.D.T. & E. I was still coming to that.

Mr. WHITTEN. I just wanted the system.

COST OF LEASED SPACE

Mr. SLACK. General, I notice at the bottom of page 17 you are requesting \$2.1 million for leases for space at three locations. Is this an annual lease?

General STARBIRD. That is an annual lease, sir. We actually leased space for the Sentinel system office here in Washington, we leased space in Huntsville, Ala., for the Sentinel System Command, and we leased space in Fort Huachuca or a little town outside of Fort Huachuca for the Stratcom element.

Mr. SLACK. In the \$2.1 million that you are requesting, has this space already been contracted for?

General STARBIRD. It has been contracted for, and the exact contracts differ, sir. In the case of the Safeguard system office here in Washington, we are actually reimbursing GSA for a building as a whole that GSA leases. We do not lease that building directly.

In the case of the Safeguard system office in Huntsville, Ala., this was a lease accomplished in accordance with title X action that was taken before the Congress, notification to the Congress.

Fort Huachuca is a smaller one, and I will have to insert for the record the details of how that was set up.

(The information follows:)

Stratcom, located at Fort Huachuca, Ariz., through the GSA, arranged for the lease of office space in the city of Sierra Vista, Ariz. Sierra Vista is located in the immediate vicinity of Fort Huachuca. The lease, as negotiated by GSA, provides for a 3-year lease with an option for 2 additional years. In this case since the total lease was less than \$50,000 per year, title action was not required.

Mr. SLACK. What happened to the space that was leased for the Nike-X? Do you still have that space?

General STARBIRD. No, sir. Actually, in the Washington area we had a small space available to the old Nike-X manager's office in Alexandria, Va., but this, again, was not an Army lease. It was reimbursement to the GSA for GSA-leased space that we were occupying. That would accommodate only about 40 people.

So, we applied to the GSA for a different set of space, and moved to the space we now occupy in Rosslyn.

In Huntsville, the space occupied was in two separate building elements, quite widely spread. One of those elements of space was rental space. We have consolidated in a building which, again, GSA leases, but we occupy the space and reimburse GSA for the occupancy.

Mr. SLACK. If it is agreeable with the chairman, at this point, in order to complete the record on space requested to the extent of \$2.1 million, I would like provided for the record the amount of space at

each of these three locations, and the cost per square foot of that space at each of the locations, which make up the \$2.1 million.

Mr. SIKES. Will you provide that for the record?

General STARBIRD. I will provide that.

I would like to repeat, we are merely reimbursing GSA, so the cost per square foot is in accordance with the GSA standards.

(The information follows:)

The \$2.1 million lease cost which is shown on page 17 is made up of the following:

Building lease costs.....	\$1,363,000
Communication lease costs.....	515,000
Utilities, guards, and other costs.....	190,000

SAFEGUARD LEASED SPACE

	Number of square feet	Cost per square foot	Cost (in thousands)
Huntsville, Ala.....	232,840	\$3.83	\$892
Do.....	76,200	3.75	286
Rosslyn, Va.....	30,875	4.75	141
Sierra Vista, Ariz.....	32,000	1.38	44
Total, Safeguard lease cost.....			1,363

Mr. MAHON. General, may I ask, where is this space in Rosslyn?

General STARBIRD. It is on the 11th and 12th floors of the Commonwealth Building. The Commonwealth Building is on the corner of Wilson Boulevard and Fort Myer Drive in Rosslyn, Va. It is in a building leased by the GSA.

A major portion of that building is occupied by Department of Defense, Department of the Army, Department of the Navy. On the 11th floor there is the headquarters USAF (AFSPDI) Industrial Research Division.

Mr. MAHON. Where is your own office?

General STARBIRD. It is there, sir, in Rosslyn.

Mr. SIKES. Further questions?

PERSONNEL LOSS IN EVENT OF PROGRAM CUTBACKS

Mr. MINSHALL. I would like to ask a few very brief questions, please.

General Starbird, earlier in your testimony you said, in response to a query from our chairman, that if the SAFEGUARD missile system was not approved by Congress this year, a large part of the funds we have put in this program would be lost, even if we should try to pick it up a year or two hence, and also there would be tremendous loss of personnel.

I wonder if you would detail that a little bit for us this morning as to how much money and how many numbers of people we are talking about?

General STARBIRD. Right, sir.

We have employed in the prime contractor and the first tier sub-contractors—those are the ones who are producing the SPARTAN, the SPRINT, and the like, or making preparation for their production—something over 5,000 personnel. These are all, of course, carrying out production-type activities that are paid for by PEMA funds, PEMA funds for effecting the deployment.

In addition to that, there are approximately 10,000 personnel who are carrying out research, development, and test activities in the prime and subcontractor plants.

We have much smaller numbers who are engaged in preproduction type activities in the Army Commands. For example, the Army Munitions Command of the Army Materiel Command is preparing to produce what are called adaptation kits, the thing that links the warhead to the missile and makes the warhead safe and behave properly. Those people were all highly trained.

Mr. MINSHALL. May I interrupt at this point. You gave us a figure totaling 15,000 plus some others. What is the total number of personnel involved in the Safeguard program as of today, June 16, 1969?

General STARBIRD. It is somewhat higher than the 15,000.

I would estimate them to be about 18,000 people in all. They are carrying out two types of activities: research, development, and test; and, in addition to that, preproduction-type activities and engineering-type activities. About one-third are on the preproduction and engineering for preproduction, about two-thirds are on the research, development, and test.

As you can appreciate, sir, below the first tier contractors we are not able to get the exact man-years, because, for example, if you buy wire from a cable-furnishing company, it is almost impossible to establish exactly how many man-years of effort are related to that wire.

Mr. MINSHALL. The reason I asked the question, general, was because of your earlier testimony in which you stated a large portion of this personnel, whether it be in R. & D. or whatever phase of the Safeguard System they come under, would be lost if Congress should not act this year and did not act, say, for another year or two.

General STARBIRD. Let me go on, if I may. I tried to show—

Mr. MINSHALL. I would like to have specific the number for that large part that you gave us.

General STARBIRD. It is on the order of 6,000 to 7,000 people who would be no longer carried because the procurement and deployment type activity was not authorized. That is only within the prime contractor, the first-tier contractors, and the architect engineers related to the deployment.

Mr. MINSHALL. Is that the kind of personnel you were referring to?

General STARBIRD. It is those. It is the production and production management people; to a much lesser number it is A-E's who are engaged in planning in connection with construction.

INVESTMENT LOSS IN EVENT OF PROGRAM CUTBACKS

Mr. MINSHALL. So much for the personnel phase of it.

How about the dollars to be lost?

General STARBIRD. I did not give a total figure. As I indicated, something over \$400 million has been obligated on PEMA-type activities. The dollars obligated on MCA are much smaller, but are still substantial. If we terminated the production and terminated our preconstruction readiness activities, we would allow those people to go. We would have to negotiate to determine exactly what has already been put underway, what is the most economical method of terminating, all the way down to the vendors.

Mr. MINSHALL. Your request is based on continuing R. & D.?

General STARBIRD. My answer was based on the assumption of continuing the full R. & D., but I cannot estimate the number and it would take several weeks to several months, because once a termination had been decided upon, one would have to negotiate with each contractor and vendor to determine what would be required to terminate his effort.

Mr. MINSHALL. But on the order of what we are talking about, in round figures?

General STARBIRD. It was something under \$400 million. The \$400 million covers certain procurement that is already underway. As I remember, the procurement of hardware runs on the order of \$150 million. If we were ever to use that again, then that would not be lost effort, but if it were just boxed and put away or thrown away, then a major portion of the obligated \$400 million would be lost.

TOTAL COST OF SAFEGUARD AND PREDECESSOR PROGRAMS

Mr. MINSHALL. I think it would be well at this point in the record, General, if you would supply how much we have put in the Safeguard missile system with all its predecessors, as of today, and as you look down the road, how much you anticipate you will put into the Safeguard missile system.

General STARBIRD. I can do that and shall, sir. If I may, I will confine it to the phase 1 because, of course, there is no decision as to what a phase 2 might be.

Mr. MINSHALL. This I well understand.

General STARBIRD. Right, sir.

Mr. MINSHALL. I do not know how far back you should go.

General STARBIRD. We have a sheet which goes clear back to 1957, as far as the effort that has been put into it.

Mr. MINSHALL. Thank you.

(The information follows:)

FUNDING IN SUPPORT OF SAFEGUARD AND PREDECESSOR PROGRAMS

(In millions of dollars)

Program	Appropriated	OSD approved program	Obligated as of June 16, 1969
Nike-Zeus, fiscal years 1956 through 1965.....	1,473.9	1,398.0	1,398.0
ZMAR/Sprint, fiscal years 1962 through 1963.....	51.2	109.2	109.2
Nike X, fiscal years 1964 through 1969.....	¹ 1,763.4	² 1,654.9	1,603.7
ABM range support, fiscal years 1956 through 1969.....	³ 73.6	³ 123.7	122.4
Total.....	3,362.1	3,285.8	3,233.3
Safeguard:			
Fiscal years 1968 through 1969.....	⁴ 1,743.9	⁵ 1,452.8	1,205.1
Fiscal year 1970.....		⁶ 891.5	
Fiscal years 1971 through 1974.....		⁶ 2,155.7	
Total.....	1,743.9	4,500.0	1,205.1

¹ Excludes \$401,300,000 transferred to Sentinel/Safeguard. Includes \$153,500,000, fiscal year 1967 PEMA, subsequently reprogrammed to Sentinel by the Office of the Secretary of Defense in fiscal year 1968 and thereafter reprogrammed by congressional action during fiscal year 1969 budget hearings to support other programs.

² Excludes \$361,300,000 transferred to Sentinel/Safeguard.

³ Exact amount attributable to ABM cannot be determined. Amounts shown reflect best estimate of Kwajalein and White Sands Missile Range costs attributable to ABM activities.

⁴ Includes \$401,300,000 transferred from Nike-X.

⁵ Includes \$361,300,000 transferred from Nike-X.

⁶ Safeguard phase 1 costs only.

Mr. SIKES. Further questions?
(No response.)

MISSILE SITES

PAR AREA COVERAGE

Mr. SIKES. Under missile sites, you indicated, General Starbird, that each of the two Safeguard sites will have one PAR and one MSR. The PAR has only one face. Will the PAR at each site face in the same direction?

General STARBIRD. It does, sir; generally north.

Mr. SIKES. What limitation does a one-face PAR have as to area of coverage and direction?

General STARBIRD. It will cover a sector ——— sir. These two PAR are directed on the ICBM avenue of attack.

MSR AREA COVERAGE

Mr. SIKES. The MSR has four faces. Does it have full 360-degree coverage?

General STARBIRD. It does, sir. Realize that an MSR is a battle-direction radar, and if an incoming ICBM overflies the radar, it is first tracked on the face looking in one direction, and then tracked and the battle may be controlled on a face looking in another direction.

Mr. SIKES. Is there no blind spot?

General STARBIRD. There are no blind spots.

INSTALLATION OF PAR "BREADBOARD TEST/BED"

Mr. SIKES. Your statement indicates you do not intend to install a PAR prototype, but a "breadboard test/bed."

Will you explain the difference?

General STARBIRD. Yes, sir. A prototype is a full-scale operating item. In other words, a full-scale MSR. A breadboard test/bed is merely a slice of a full prototype.

Let me explain a little more. Radar consists of many transmitter elements. We take a slice of transmitter elements, a slice of all the other electronic elements behind it, and we use this to prove that a preproduction component will behave as we expect.

PAR OR MSR INTERCEPT OF INCOMING MISSILE

Mr. SIKES. In your tests thus far, have you used either the PAR or MSR, or both, to acquire and intercept an incoming missile?

General STARBIRD. We have not used the PAR and MSR. Earlier radars were used in 1962 and 1963 to make interceptions of ICBM's by Nike-Zeus missiles, the predecessor to the Spartan.

DESCRIPTION OF MISSILE SITE RADAR (MSR)

Mr. MAHON. General, you may already have done this, but I wish you would repeat, if necessary, a description of what an MSR, Missile Site Radar, will look like.

General STARBIRD. A Missile Site Radar, Mr. Chairman, is a large fixed structure. It is a structure almost 200 feet on the side. It is a structure which extends above ground about 40 feet and below ground about 40 more feet. It is filled with electronic gear and data processing gear, and in almost every one there is a command center.

Each of those circular faces which you can see on the diagram consists of about ——— little transmitting elements. You will remember that the older radar were generally big dishes.

Mr. MAHON. That is what I was wondering about.

General STARBIRD. Those dishes had to get their beams on a target by rotating vertically and horizontally the dish. The speeds, therefore, at which they could accomplish were comparatively extremely slow.

Around 10 years ago, an electrically steered beam was first developed and used. That electrically steered beam is a so-called phased array radar. The phased array radar, such as that which you see here, can scan a whole ——— in a period of less than ———.

It can be focused into several different beams, if need be, to track several different objects. It can flick back and forth to aid you in tracking.

In the case of the PAR, ——— different objects can be looked at nearly simultaneously. This particular MSR can handle about ——— incoming objects, and at the same time handle ——— interceptors in the air going out for objects.

Mr. MAHON. How big is the building that we are looking at in the diagram?

General STARBIRD. It is about 120 feet on the side, and extends about 40 feet above ground, and about the same distance underground.

PAR BLIND SPOT

Mr. SIKES. The chart says the antenna is 13½ feet. You have stated there are no blind spots on the MSR. Would you say there is a blind spot on the PAR when it faces only one way?

General STARBIRD. There is a blind spot. In fact, there is a ——— on the perimeter acquisition radar. However, the two sites that are concerned here are sites that could have either of two purposes: one handling Minuteman-like missiles approaching from over the pole, or a like attack from the Chinese, or an accidentally launched attack.

If our deployment at some future time had to be augmented to handle a sub-launched attack, then added PAR would be put in along the coast, and these PAR looking seaward along the coast would provide the warning to the MSR's of objects coming into this area.

Mr. SIKES. Isn't that taking a dangerous risk? You already know that you can have that attack from submarines.

General STARBIRD. There are submarines in existence at the present time which would have the capability of attacking into this area.

The purpose of the deployment which has been approved so far is not to handle that attack, sir. As you know, it is to put ourselves in a readiness position to deploy to handle additional threats, should these develop.

PROTECTION AGAINST FOBS

Mr. SIKES. You have not mentioned possible attack from FOBS.

General STARBIRD. That is correct, sir, and for FOBS there is a

limited capability given to the MSR by its own southern-looking faces. However, if it were decided to make a full deployment, then there would be two perimeter acquisition radars put in on the south coast. One would be in Florida. The other one would be in California.

Mr. SIKES. Aren't you exposing your program to serious criticism on the ground that you are offering only ——— degree protection, and from ——— degrees' direction you have much more limited protection and, therefore, the usefulness of the entire system is correspondingly degraded? What would be your answer to that charge?

General STARBUCK. If it were decided that it was necessary to make a deployment to handle the sub-launched attack, then we would have to place PAR's along the coast and at least four PAR's would be so required.

One of the alternate deployments that was described to the committee was one in which there were 12 basic stations and there were four coastal PAR's to give the warning and early track for the sub-launched attack. The same one will provide protection against FOBS.

With respect to these two MSR's, for an attack by subs or by FOBS, they would give a lesser degree but a degree of protection to the Minuteman areas that they are in because they do have southern-looking faces, and a part of the defense is a defense with Sprint.

PROTECTION AGAINST SLBM'S

Mr. SIKES. We have placed great reliance on our own submarine nuclear attack capability. We must give the Russians credit for developing an effective attack in this field. It would be extremely foolish not to. Are we not simply helping to channel their attack into that direction by not building the PAR's on the coast at this time?

General STARBUCK. Let me go into another basic set of reasoning on these two particular stations, sir. The only weapons that we know of ———

Mr. SIKES. People are saying now the system is not any good, and if we help that charge by failing to provide protection from every direction, we weaken our case for the ABM.

General STARBUCK. Let me take that as a separate issue.

In the particular case of these two stations, their main purpose, of course, is to acquire experience in deploying, in checking out, in operating a complete but small ballistic missile system entity.

However, the only weapons we know of right now which are believed to have the accuracy and yield to attack a Minuteman silo or a Minuteman control center are the SS-9's. These in all probability would be launched over the pole and, in fact, if they were launched the other way around, their accuracy would probably go down to a point where they would be marginally effective.

Though I stated that there were subs in existence that could attack, we believe that the ———.

Right now, if they used the subs that they have with the ———.

I was going to answer the other question.

SLBM COMBINED WITH IOBM ATTACK

Mr. MAHON. Before you do that, let me ask this question: To what extent do we conclude that we will not have an initial attack from a

submarine-launched missile unless such attack were accompanied by an intercontinental ballistic missile attack, also? Do you get the point I am trying to make?

General STARBIRD. I get your point, sir.

Mr. MAHON. What is the philosophy or thinking on this at this time?

General STARBIRD. I can only give what would be my own feeling. If he is going to launch a sizable number of weapons of any type against the United States, under the basic situation that exists between ourselves and the U.S.S.R., he can only expect that he may and probably will receive serious retaliation. He would avoid, therefore, delivering any unless he intended to make a major attack.

The sub-launched missile has an advantage from his point of view over the ICBM. The sub-launched missile, because of its lesser time of flight and because of its concealment before launch, can hit U.S. locations in 7 to 15 minutes, depending on how they make their trajectories. It might be even somewhat less, but there are certain physical limits to the missile, as we understand it. It looks as if he could hit with the SLBM in 7 to 15 minutes.

With an ICBM, though, even fired the short way over the pole, we would have something better than 15 minutes warning for a major attack. We might even if there were an accidental launch.

The BMEWS would pick that up, a launch of one, two or three missiles.

We are relatively certain if there is a sizable number of missiles, they will be identified and we will have a 15- or 20-minute warning.

With the advanced systems that this committee is familiar with and some of my witnesses are not, we should get from ICBM attacks something like _____ minutes warning.

On the other hand, although the SLBM has an advantage in its being able to hit quickly and hence give the least time for the United States to react, it has a disadvantage in that it is a weapon which does not possess a great deal of yield and accuracy, according to our best estimates from what we know of it.

This being true, it would be most logical to use it as a part of an overall attack, use it against cities, use it particularly against critical command centers such as the national command authority location, and use it against the alert bombers which can be gotten off the ground with the warning we can expect from an ICBM attack, but this would not be the case with the sub-launched attack,

EFFECTIVENESS OF PHASE 1 DEPLOYMENT

Mr. MAHON. You were about to answer the second phase of Mr. Sikes' question.

General STARBIRD. The second phase was to the effect that there is comment that the system would not be effective. The Phase 1 deployment, as such, will accomplish only a very limited purpose, but it will give us critical experience which would let us effect a more complete deployment should this be necessary in the 1975 time frame.

As far as the individual components are concerned, they will accomplish the purpose that they are designed to accomplish. As far

as being able to integrate them into a system for the missions that are concerned, I am convinced that they will accomplish that purpose.

But we cannot look at the two-site deployment as having a major effect, either in protecting Minuteman or in protecting against a Chinese attack or a sub-launched attack against our bomber force.

PAR SITES REQUIRED FOR PROTECTION AGAINST CHINESE ATTACK

Mr. SIKES. What is the minimum number that would be required for that purpose?

General STARBIRD. To give reasonable protection of the United States against a Chinese attack would require about 12 stations. This is less than the number contemplated under the old Sentinel program of 17 stations. Of those 12, two would be the Phase 1.

The total investment cost of the 12 would be \$6.6 billion, sir.

Could I answer one more part, and that is, by properly placing those 12 stations, they will give us a protection to the major portion of our dispersed bomber bases. When I say protection, I mean protection for long enough for the alert force bombers to get in the air. This is not protection forever.

USE OF SLBM'S AGAINST MSR'S

Mr. SIKES. Would it be a feasible thing for submarine-launched missiles to be used against MSR's, assuming they would not be coastal PAR's, and in that way to destroy the capability of defense against missiles, leaving them exposed to an ICBM launch from Russia or any other power?

General STARBIRD. We think not, sir. In fact, we are convinced not, because at each MSR, these first two or later ones if they are deployed, there are Sprint's deployed, and we have based the numbers of Sprint's that are available near the MSR in part on those necessary to protect the MSR so it can live long enough to carry out its mission.

Mr. SIKES. If the entire 12 which you have stated would be needed for protection were built, would there also be a need for the coastal PAR's that we discussed earlier?

General STARBIRD. The 12, sir, are stations that have missile site radars and missiles in them. Some of the 12 also have perimeter acquisition radars with them. In fact, there would be seven total perimeter acquisition radars in these 12 stations.

Mr. SIKES. If it should be decided that the coastal PAR's are needed as a part of the initial program, you stated four of them would be required?

General STARBIRD. Four would be required.

Mr. SIKES. What would be the cost?

General STARBIRD. The investment cost for the four would be in the neighborhood of \$800 million, sir.

VULNERABILITY OF SAFEGUARD

Mr. MINSHALL. General Starbird, one of the concerns that I have about the ABM system is the possibility that the PAR's and MSR's which are the brains of the system might be jammed or knocked out

or so confused or so overwhelmed as to make the entire system inoperative.

You are very familiar with this program. If you were advising the Russian military or the Chinese military what you feel are the weaknesses and the strengths of this system, if you were masterminding a Russian attack, what would you do to accomplish the jamming, the confusing, or overwhelming, or the knocking out of this system?

General STARBIRD. It would be a long answer. I can go through it, if you wish.

(Off the record.)

AFTERNOON SESSION

PAR 12 SITE DEPLOYMENT

Mr. MAHON. General Starbird, just before we had adjourned this morning you mentioned the possible deployment of 12 PAR sites. That means perimeter acquisition radar sites. Now, you mentioned 12 around the perimeter of the United States at an estimated cost of \$6.6 billion. This added deployment would provide time to permit our Strategic Air Command forces to become airborne in the event of a missile attack, it was stated. What type of attack are we addressing in this context? Soviet, Chinese, third country? In what magnitude?

General STARBIRD. The deployment that was referred to had 12 missile site radar with 12 missile complexes at those missile site radar and seven perimeter acquisition radar at seven of the 12 sites. The perimeter acquisition radar are around the periphery rather than being at any of the sites located centrally in the United States.

Now, this system would accomplish the following purposes: It would provide protection, insure the survival of approximately _____ of the Minuteman silos as against a threat such as that that the U.S.S.R. could have in the mid-1970's.

Second: For the attack that the Chinese might develop throughout the 1970's this would provide a high degree of casualty reduction. It would reduce the casualties over those that might occur in the late 1970's from figures like _____ million persons down to _____ persons, or perhaps less.

In addition to that, assuming that the sub-launched ballistic missile threat developed at the speed it could develop, in the mid-1970's it would insure that a major number of our bombers on alert made a safe departure from the bases and flew to a distance away from the bases so they were not destroyed prior to the time they could become effective.

In addition to that, should the U.S.S.R. deploy FOBS, the Safeguard deployment would protect the MSR sites, the PAR sites, and approximately _____ percent of the same bomber bases on which our alert bombers were deployed against the FOB's threat.

Taking those threats in turn: All of them are threats of the USSR against elements of our strategic deterrent except for the CPR threat that I mentioned. Also, carried as part of this 12-site deployment would be the fact that one of the sites is to be deployed in the vicinity of Washington. In addition to carrying out a protection of some of the bomber bases for long enough for the bombers to escape, and protection against the CPR attacks, should it develop, this will

also give an increased period of time to the National Command Authorities so that they will have time to react and to give any essential instructions after an attack against us is detected.

The amount of time given varies, depending upon the attack. Against the Chinese, the station near Washington should give almost indefinite protection. Against a sub-launched attack for the number of Polaris-type subs that could be expected to launch their attack against Washington, the added time guaranteed would be several minutes to many minutes.

Should the USSR concentrate their attack, a very heavy attack of ICBM's, of which they have many more than the SLBM's, then the added time would be a matter of a few minutes because such a station could be overpowered if enough attack was concentrated against it.

Sir, that figure is \$6.6 billion investment cost for the full 12-site deployment.

Mr. MAHON. Would that include the PAR installation and the missiles to defend them?

General STARBIRD. It would in that case. It is the investment cost, the PEMA and the MCA.

COST OF FOUR ADDITIONAL PAR'S

Incidentally, Mr. Sikes asked a question earlier about the cost of installing added PAR, the four on the corners of the United States, to give warning against the SLBM. I gave a figure of \$800 million, approximately. That would be only the cost of the PAR themselves. To make the PAR actually effective the MSR should be deployed to that locality along with the missiles. The total added investment in that case would be the order of \$2.5 billion.

Mr. MAHON. Would that \$2.5 billion include the \$800 million?

General STARBIRD. That includes the \$800 million.

FUTURE DEPLOYMENT

Mr. MAHON. Now, is it still thought best that we should have the two sites, North Dakota and Montana, that we start with that and not initiate the program of the magnitude which you have mentioned?

General STARBIRD. That is correct, Mr. Chairman. The only approved element insofar as the President is concerned of the SAFEGUARD system is the deployment of two sites. He has indicated that he will review the situation again in December so as to decide whether additional sites for deployment are warranted. He has indicated that the decision will be based on three factors, really: first, technical progress; second, how the threat is developing; and, third, progress in strategic arms limitation negotiation.

DEPLOYMENT OF FOUR ADDITIONAL PAR'S

Mr. MAHON. You have commented to some extent on the questions which I shall now ask, but I will put them in the record and you see that they are answered.

How vulnerable is the current phase I deployment to a submarine-launched attack from the east and west coasts and the Gulf of Mexico,

and how would the added PAR deployment enhance our position from such an attack?

(The information follows:)

The Phase I Safeguard deployment is quite invulnerable to SLBM attack of the level projected for the mid 1970's. The deployment of four PAR's on the coasts would provide early detection and warning of an SLBM attack.

(Additional classified information has been furnished separately to the committee).

Mr. MAHON. How effective would such an added deployment of undefended PAR sites be?

(The information follows:)

Undefended PAR sites along the coast could provide early warning of SLBM attack, however, because they are undefended they could be easily destroyed and therefore could not be depended upon to provide tracking data.

(Additional classified information has been furnished separately to the committee.)

Mr. MAHON. What would be the cost if we decided to defend such an added deployment of PAR sites?

(The information follows:)

The total added investment cost for the four PAR's, and four MSR's with associated missile fields deployed locally to provide protection for the PAR would be of the order of \$2.5 billion.

VULNERABILITY OF SAFEGUARD

Mr. MINSHALL. I asked a question before lunch. I have become increasingly alarmed about the vulnerability of the PAR and MSR sites. Not only as to being overwhelmed from a massive attack but from a jamming point of view, from being knocked out, from sabotage, or whatever the reason may be. I wish you would address yourself to that for a minute, General, as to what the enemy capabilities are as far as making this system virtually useless.

General STARBIRD. The system that was initially designed, and was carried forward in research and development to about 1961 and early 1962, could have been swamped and overcome. In explanation, when the research and development was started in 1957 the threat that was visualized was extremely small. In addition, where we had theoretical ideas of penetration aids and of blackout we knew little about them.

However, as early as 1957 the United States started the development and test of penetration aids; such things as balloons, decoys, chaff. In 1961 we conducted an extensive high-altitude test series. This was actually the third of the series conducted, but by far it was the most extensive. It was done with the idea of getting an idea of what was the behavior of large explosions, nuclear explosions in the higher altitude and it was monitored and extensively instrumented. Now, based on that information from the high-altitude tests, based on our own experience in developing penetration aids, the system was radically changed and reoriented at the end of 1962. Up until that time the form of defense visualized was high altitude, entirely high yield interceptor, and it visualized rather fixed and antique—not antique, but older design of radar, would be used, some of which can handle only one missile or one target at a time.

Four things were really done to change the system. The first one, and probably the most important, was that the radars were changed

and instead of having a whole series of special-purpose radar, one for long-range surveillance and another for close-in defense in the battle direction was developed.

A second thing that was done was that another missile was added to the program. This missile was the Sprint missile. It was the missile to give defense in depth to locations such as Minuteman fields, and then visualized cities or command centers.

A third thing that was done was that the Spartan missile itself was changed in its characteristics to give it a longer range in the higher altitude capability.

A fourth thing that was done was that we readjusted the entire concept of deployment so as to employ these in an effective manner.

Now, research and development since 1962 has gone ahead on the basis of that changed design. It is a design which we are convinced can handle such things as blackout. Blackout is a problem, but the system was designed with the idea that blackout would occur and we knew the nature of the blackout from the high altitude detonations.

In addition to that, these faster, more flexible radar could handle many objects simultaneously and could thereby handle a larger threat, a threat with decoys in there.

We found out from our earlier experience prior to the reorientation, it has been fairly well confirmed since that time that the matter of developing decoys is a difficult problem. We, as you probably have heard, spent 10 years and many, many hundreds of millions of dollars trying to develop effective decoys. ———.

Now, in general, balloons are screened out by the higher atmosphere and the people that advocate balloons are correct in saying balloons can be used to confuse an area defense. They cannot be used, though, to confuse a close-in defense such as the Sprint defense of the Minuteman fields.

Decoys can be used to conceal. However, decoys, to be really effective as a concealing agent, have to be the same as the attacking vehicle. So that means he has given up part of his payload to deliver something that is inert rather than attacking an object.

Chaff is probably the most effective penetration aid. Chaff can be effective ———. The initial chaff cannot. It has to be fairly heavy to do this and not burn up as it enters the atmosphere. ———.

We have had others that we have deployed but we found they were not fully effective. You spoke of jammers. We have studied jammers. ———. So in essence the system was designed, based on information we experienced in all of these things, and we are convinced for the purposes for which it is designed, giving time to the bombers if this proves necessary, protecting a portion of the Minuteman fields, protecting the NCA and protecting against the Chinese-type of attack, it will be effective.

Mr. MINSHALL. General, I do not believe you got the main thrust of my question.

Do the Russians have the capability of breaking through or overwhelming by massive attack, either submarines, FOBS, bombers, or everything else considered in the way in which you war-gamed this—and I assume you have war-gamed this—what can they do to knock this out? Can they knock it out? If so, how? I mean, by knocking it

out making it ineffective. I don't say that they have to destroy the radar site.

General STARBIRD. Right.

They can with their ICBM's concentrate against one or more of these stations and knock it out because they have a very large number of ICBM's and the number is increasing. Where it stops we do not know. But he has something like ——— ICBM's.

Naturally, if we have at a site like 75 defenders, and if he keeps firing in there ultimately he can take out that site. He can do that with ICBM's but it takes him some time to accomplish it. It takes him like ——— minutes from warning at least for the period of flight of the ballistic missile.

Now, with his SLBM's—and we talk in terms of ——— boats or roughly ——— missiles on station in the mid-1970's—he can attack one or more of our bomber bases or, alternatively, he can attack, concentrating against one or more of our 12 sites around the country.

For that reason it is intended to disperse our bombers. He can get perhaps a small percentage by concentrating all of his sublaunched ——— missiles against a local area, but still a high percentage of the alert bombers will escape because he concentrated in that one locality. He has exhausted our own defenders in that locality.

He can exhaust the defenders in the Minuteman fields. However, for the so-called phase 2A deployment, the option of protecting Minuteman fields, there are ——— missiles deployed to the four fields concerned. This is not a rigid number; it could be more, it could be less, depending upon the threat.

Now, the objective here is either to bleed enough of his attack force away, because he attacks the MSR, or to destroy enough of the attackers if he attacks the silos, so that a number will remain.

Mr. MINSHALL. Do you believe the system can be overwhelmed?

General STARBIRD. It can be overwhelmed by an attack of ICBM's against a city or these cities, ICBM's in numbers such as the Soviets have. It can be overwhelmed by the SLBM's attacking our cities, but as far as protection of deterrent to the degree that we are asked to protect it, about ——— Minutemen and a major portion of the alert bomber forces like ——— percent, I think we can protect that deterrent force until it is employed.

PROTECTION OFFERED BY SAFEGUARD

Mr. ANDREWS. General Starbird, if I understand correctly, the purpose of this Safeguard system is to protect our retaliatory forces, not our cities.

General STARBIRD. This is correct; and to protect against the Chinese type attack, should that develop.

Mr. ANDREWS. Protect what against the Chinese?

General STARBIRD. Even the cities.

Mr. ANDREWS. All of them?

General STARBIRD. All of continental United States.

Mr. ANDREWS. Why do you say protect against the Chinese rather than the Russians? Because the Chinese do not have as great a capability?

General STARBIRD. That is correct.

Mr. ANDREWS. You mean, if you had these sites out in the Midwest, and these other places that you propose to protect all the cities on the east coast, the west coast, and the middle United States, it would do so against the Chinese attack?

General STARBIRD. Right, sir; against the Chinese type attack. This is under the assumption, as given by the intelligence community, that the number of weapons that the Chinese will have on launchers throughout the mid-1970's, toward the late 1970's, will be something less than ———.

Mr. ANDREWS. Suppose you had a double-barrelled attack from the Chinese and the Russians, where would you be?

General STARBIRD. Then the Russians would overwhelm it insofar as protecting cities are concerned.

Mr. ANDREWS. But you still can protect our missile sites?

General STARBIRD. Our deterrent; right.

Mr. MAHON. General, I am not sure that the record shows, and I think it should show, this: What do you mean by a heavy attack being able to overwhelm the ABM system? In other words, what is a heavy attack, one missile, 10 missiles, 20 missiles, 50 missiles?

General STARBIRD. The heavy attack is one in which the enemy would have on launcher and launch ICBM's totaling something over a ———.

Mr. MAHON. But I thought we were talking in terms of overwhelming a particular site.

General STARBIRD. He can overwhelm a particular site if he exhausts the number of defensive missiles that we have at that site. In some of our sites we have something like ——— missiles, but those are sites that are not designed for protecting Minuteman or the NCA-Washington. Those latter have a greater number of missiles.

Mr. MAHON. I am not getting through to you or you are not getting through to me. I am interested in knowing how you overwhelm. How much of an attack must be made on an area in order to overwhelm the defenses, if you have these defenses?

General STARBIRD. You have to have at least one more attacker than we have defenders in the area. Then if we commit all of our defenders we have used them up, and after ours are used up the next one will come through.

Mr. ANDREWS. All of those defenders would have to hit the target.

General STARBIRD. All of ours would have to hit the target. However, generally, our defenders are such that we have a capability for the mission of ———.

Mr. MAHON. How many defenders would you have at a place like Great Falls or Malmstrom?

General STARBIRD. In the Phase 1 deployment, sir, we have in the whole deployment only ——— interceptors. However, in the Phase 2 deployment that rises to ——— defenders in the four sites in the Minuteman fields.

Mr. MAHON. And would you need that many?

General STARBIRD. You would if the scale of attack is as mentioned by Secretary Laird, around 420 SS-9's on launcher, each one having three reentry vehicles or a total of about 1,260 on launcher, and of that number roughly a thousand would reach here and attack the Minuteman fields.

Mr. MAHON. If there is a salvo of ICBM's fired at a site and if you have _____ defenders, then it would not be overwhelmed, according to your theory.

General STARBIRD. If every one was perfect. But let's say _____ defenders and _____ attackers. Then the defense should be able to take care of all of them.

STRIKEBACK CAPABILITY PRIME TARGET

Mr. WHITTEN. There has been agitation in some major cities to purchase underground protection. Now, it is easy to presume that with the limited number of striking weapons and with us having part of the forces underground, that the prime targets would be our strikeback capability and not a case of just doing damage to personnel or damage to our cities; is that right?

General STARBIRD. That is the reason we are worried about the SS-9, which is apparently on a growing inventory. We can see no purpose for the SS-9 except to strike a hard target such as a Minuteman. They have an adequate number of other missiles already to deter us from striking them with a first strike.

Mr. WHITTEN. The prime targets would be our strikeback capability, in your opinion?

General STARBIRD. With the SS-9. Now, they would use their other missiles for attacking the cities.

Mr. WHITTEN. Thank you.

PAR AND MSR COST INCREASES

Mr. MAHON. Have you experienced any cost increases or overruns in the PAR and MSR developments?

General STARBIRD. None that I can recall, sir. I would like to re-search the record.

Mr. MAHON. What were the original development cost estimates and what are the current estimates?

General STARBIRD. I would like to provide that for the record, too.

(The information follows:)

MSR

1. For the 1968 contract, the cost of the R.D.T. & E. on the MSR exceeded by \$4 million the amount estimated at the time the contract was awarded. For fiscal year 1969 there was no increase in cost for the work contemplated under the contract.

2. The first detailed estimate made for R.D.T. & E. subsequent to the firm decision on the Sentinel deployment configuration was completed in late spring of 1968. The total estimated cost of R.D.T. & E. for the MSR by the designers was [deleted] for the period through fiscal year 1974 for the Sentinel deployment. The comparable current Safeguard estimate is [deleted] for the period through fiscal year 1974. The primary reasons for increase here were as shown:

(a) The Safeguard deployment required the deployment of an improved MSR capability to be added if threat development later required. The estimated cost of developing this capability is [deleted].

(b) Certain investigations and design changes became necessary, largely as a result of experience with the meck prototype MSR, and these required increase of \$3 million.

(c) Price level increases accounted for the remainder, approximately \$3 million.

PAR

1. For the fiscal year 1968 contract, the cost of the R.D.T. & E. on the PAR exceeded by \$5 million the amount estimated at the time contract was awarded. For fiscal year 1969, there was no increase in cost for the work contemplated under the contract.

2. The first detailed estimate made for R.D.T. & E. subsequent to the firm decision on the Sentinel deployment configuration was completed in late spring 1968. The total estimated cost of R.D.T. & E. for the PAR by the designers was [deleted] for the period through fiscal year 1974 for the Sentinel deployment. The current Safeguard estimate is [deleted] for the comparable period. The primary reasons for the increase were as follows:

(a) The Safeguard deployment requires capability for multiple faces in the PAR and design effort related to this totals [deleted].

(b) The first PAR under both Sentinel and Safeguard was to be both a research and development PAR and an operational PAR and to be financed from R.D.T. & E. appropriations. This PAR for Sentinel was to be near Boston in an area where certain support was readily available and relatively close to point of manufacturing. The first Safeguard is to be in North Dakota. The added installation, engineering and testing costs due to this more remote location accounts for \$6 million of the increase.

(c) Subsequent to this initial estimate the need for additional investigation of nuclear hardness became apparent and the estimate cost of this and the engineering related thereto was \$3 million.

(d) Also, shortly after the initial estimates certain design changes were determined necessary and were directed in the interest of increasing the PAR's capability, standardizing certain items, and lessening potential interference to civilian activities. The estimated cost of this was \$9 million.

(e) Price level increases during the period amounted to \$3 million of the increase.

(f) Revised estimates subsequent to total hardware definition caused an increase in total program of \$3 million.

SPARTAN MISSILE

PREDEPLOYMENT TEST FIRINGS

Mr. MAHON. Now, with respect to the Spartan missile, you have indicated that you have had only 9 Spartan firings to date during a predeployment test program of _____ launchings. Does this mean that for some reason you were unable to fire the Spartan on _____ other occasions and that the test program has slipped?

General STARBIRD. No, sir, it does not. My wording was bad. All that was intended to indicate was that we have fired nine, they have generally been on schedule; however, they are still _____ more that are tests to come before deployment.

Mr. MAHON. You have had two partial successes and one failure in nine Spartan firings. Was the failure and partial successes early in the test firing program or were they recent?

General STARBIRD. No, they were not. Of course, we had a very limited sample and each one had a special mission. The last one was the failure. The other two partials were the fourth and fifth flights.

Mr. MAHON. Have you identified and corrected all the problems with the Spartan?

General STARBIRD. We have, and correction is being made.

Mr. MAHON. Has the Spartan missile met all contract performance specifications?

General STARBIRD. All those that have been tested to date. Now, this whole flight period of _____ flights is a period of checkout to insure that all elements of the performance requirement will be met.

SPARTAN COST OVERRUNS

Mr. MAHON. Have there been any cost increases or overruns in the development of the Spartan? Also, what was the original development cost estimate and what is the current estimate.

General STARBIRD. Again, I cannot remember any, but I would like to research the record.

(The information follows:)

1. For the fiscal year 1968 contract, the cost of R.D.T. & E. on the Spartan missile exceeded by \$4 million the amount estimated at the time the contract was awarded. For fiscal year 1969 there has been no similar cost increase subsequent to contract award.

2. The first detailed estimate made for R.D.T. & E. subsequent to the firm decision on the Sentinel deployment configuration was completed in late spring of 1968. The total estimated cost of R.D.T. & E. for the Spartan missile by the designers was _____ million for the period through fiscal year 1974 for the Sentinel deployment. The current estimate for Safeguard R.D.T. & E. on the basic Spartan through the same time period is _____ million. Of the _____ increase, _____ is due to a decision to move the _____. The remainder is accounted for almost entirely by the necessity for design and engineering changes to _____.

3. Not contemplated under the Sentinel program but contemplated under the Safeguard deployment is the development through flight demonstration at least of an improved Spartan to meet the potentially more complex Safeguard threats. For the period of research, development and test through flight demonstration this cost is estimated as _____ million and is additional to the R.D.T. & E. for the basic Spartan described in paragraph 2 above.

PRE-PRODUCTION COSTS

Mr. MAHON. Your statement indicates funds for "preparation for production" and "for support to ready for production." Will you explain the difference?

General STARBIRD. Yes, sir. There are two general categories we speak of. One is the period of time until you are ready to initiate production. That is preparation for production. Then the other is for support of the final bit of that time and the period of actual production. They overlap to a degree. In the first period, the period of manufacture and preparation, you take the design that the designer has made, you determine what tools and test equipment, what manufacturing processes, and the like, should be carried out. You prepare the lines for this.

Mr. MAHON. Will you expand on that for the record?

(The information follows:)

Preparation for production is the establishment of a production capability and includes the acquisition of industrial plant equipment by the contractor, the fabrication and installation of special tools and test equipment required in the manufacturing process, the preparation of the manufacturing space and engineering to establish efficient production. Support to ready for production (production services) includes the preparation of maintenance information, provision of supporting engineering services and the management and supervision of the production program by the Government, the prime contractor and the major sub-contractors.

SPARTAN PREPARATORY COST

Mr. MAHON. Will you explain the use to be made of the \$8 million for preparatory measures involving the Spartan missile?

General STARBIRD. The \$8 million, I think, is the figure for installation and test; and with it we are preparing manuals, detailed test procedures, layouts, and specifications for the actual deployment of missiles at a later date.

Mr. MAHON. Will any of the fiscal year 1970 PEMA funds be utilized to buy complete Spartan missiles?

General STARBIRD. Not yet, sir. Only a limited amount for advance components.

SPARTAN UNIT COST

Mr. MAHON. What is the unit cost of a Spartan missile?

General STARBIRD. For the phase 1, which is a limited deployment, the Spartan missile will cost approximately \$2.8 million per missile. This includes missile and launcher hardware, installation, test, and checkout.

SPRINT MISSILE

DEVELOPMENT PROGRAM

Mr. MAHON. Now, let us discuss the Sprint missile for a moment. It would appear you are having better success in the Sprint missile development, in that you have had 30 firings to date of a total predeployment test program of ——— launchings. How far has the Sprint program slipped?

General STARBIRD. The Sprint program has not slipped, sir. Again, this is 30 of the total number before deployment is made. Because the Sprint is a new missile and very rugged and flexible, we did start testing substantially earlier than in the case of the Spartan which was a follow-on to the Nike-Zeus.

Mr. MAHON. The Spartan is your long-range missile and the Sprint is the short range?

General STARBIRD. Yes.

Mr. MAHON. Have there been any cost increases or overruns in the development of the Sprint?

General STARBIRD. Again, I cannot recall any.

Mr. MAHON. Supply it for the record. Also, what was the original development cost estimate and what is the current estimate?

(The information follows:)

1. For the fiscal year 1968 and fiscal year 1969 contracts, cost of the R.D.T. & E. accomplished on the Sprint missile has not exceeded the amount estimated for this scope of work at the time the contract was awarded.

2. First detailed estimate made for R.D.T. & E. subsequent to the firm decision on the Sentinel deployment configuration was completed in the late spring of 1968. The total estimated cost of R.D.T. & E. on the Sprint missile by the designers was ——— million for the period through fiscal year 1974 for the Sentinel deployment. The current estimate for Safeguard for the basic Sprint is ——— million. The increase is due entirely to the added system test firings incorporated in the development program to accommodate the system's test program to the greatest threat of the Safeguard deployment.

MISSILES ON HAND

Mr. MAHON. How many Sprint missiles do you have on hand for your test program?

General STARBIRD. We do not have any full missiles on hand except one that is now being assembled for test. We do have components.

The advance components are ready; ordered so as to be ready at the time we need them for the test.

PREPRODUCTION COSTS

Mr. MAHON. What is the difference between the \$10.2 million for "facility amortization and for engineering related to preparation for production" and the \$11.9 million "for support to ready for production"?

General STARBIRD. This is a similar question to that you earlier asked me.

Mr. MAHON. Clarify it for the record.
(The information follows:)

Preparation for production is the establishment of a production capability and includes the acquisition of industrial plant equipment by the contractor, the fabrication and installation of special tools and test equipment required in the manufacturing process, the preparation of the manufacturing space and engineering to establish efficient production. Support to ready for production (production services) includes the preparation of maintenance information, provision of supporting engineering services, and the management and supervision of the production program by the Government, the prime contractor and the major subcontractors.

COST OF PREPARATORY MEASURES

Mr. MAHON. What is involved in the \$2.8 million preparatory measures, including "contractor planning for site activation and preparation" for tests and demonstrations? Will this be at Kwajalein or at the Safeguard sites, and does this involve construction of any sort?

General STARBIRD. It will be at the site, the operational site. It is the same as the type of activity as for the \$8 million for the Spartan I earlier mentioned. It does not involve construction.

SPRINT UNIT COST

Mr. MAHON. Will you give the unit cost of the Sprint missile?

General STARBIRD. For phase 1 which is a limited deployment the Sprint missile will cost \$2.1 million. This includes missile and launcher hardware, installation, test, and checkout.

PROCUREMENT CONTRACTS

FISCAL YEAR 1969 PROCUREMENT

Mr. MAHON. You indicated that with the decision to adopt the Safeguard deployment, General Starbird, the Army continued procurement contracts already in force, with adjustments for Phase 1 deployment. Just what did you continue to procure in fiscal year 1969 and in what quantities?

General STARBIRD. We had under order one PAR, one PAR data processor, advanced components for the second PAR and for the MSR with its data processor and the tactical software control center data processing element. We continued all of these. We cancelled some of the advanced components that would have applied to later sites,

and we did slow up some of the delivery dates based on the fact that the operational availability date was slipped from October 1972 to January of 1974 by the new plan.

PEMA CONTRACTS FOR ABM DEPLOYMENT

Mr. MAHON. For the record, would you provide what contracts have been awarded, using procurement and production funds, leading toward the development of an antiballistic missile system? We want to know when the contracts were awarded, the contractor, the contract cost, and how much has been obligated and expended against each contract.

(The information follows:)

The following PEMA funded contracts have been awarded toward deployment of the Safeguard BMD System:

DA-HC-60-68-C-0017 Sentinel production contract.—Western Electric Company, 29 March 1968 initial contract date. PEMA obligation \$301,844,258. Expenditures through May 1969 \$103,232,347.

DA-HC-60-68-C-0014 Site selection validation studies.—Boeing Company, 18 January 1968 initial contract date. PEMA obligation \$1,318,301. Expenditures through May 1969 \$1,082,651.

DA-HC-60-68-C-0026 Production facilities.—Western Electric Company, 15 November 1968 initial contract date. PEMA obligation \$1,219,350. No expenditures through May 1969.

DA-30-069-AMC-333(Y) PEMA funding of the first perimeter acquisition radar as the prototype under the development contract since this first PAR is scheduled for deployment at tactical site.—Western Electric Company, 9 May 1968 contract supplement date for initial PEMA funding. PEMA obligation \$87,608,164. Expenditures through May 1969 \$9,573,630.

Expenditures are defined as Government payment of submitted vouchers (disbursements).

Mr. MAHON. For each contract awarded for procurement or production of ABM system components, describe the kind of contract involved, the contractor, the value of the contract, the work to be done under the contract, the extent of competition obtained, and so forth.

(The information requested follows:)

The following data is provided on PEMA funded contracts for procurement or production of system components:

DA-HC-60-68-C-0017, cost-plus-fixed-fee contract.—Sole source negotiated under 10 USC 2304(a)(14). Western Electric Co. Supplies and services for production and deployment of Sentinel. Current contract value \$302,221,368. (PEMA \$301,844,258; OMA \$377,110).

DA-HC-60-68-C-0026, cost contract (no fee).—Sole source negotiated under 10 USC 2304(a)(10). Western Electric Co. Renovation of Government owned Tarheel Army Plant, Burlington, N.C. Current contract value \$1,219,350.

DA-30-069-AMC-333(Y), cost-plus-fixed-fee.—Sole source negotiated under 10 USC 2304(a)(11). Western Electric Co. Production of perimeter acquisition radar and data processing. Current contract value \$1,991,774,699 primarily R.D.T. & E. funded cost-plus-incentive-fee contract—PEMA funded amount is cost-plus-fixed-fee for \$87,608,164.

PEMA FUNDING

Mr. MAHON. Now, with respect to PEMA funding, General Starbird, you indicate that \$132.7 million of the fiscal year 1968 PEMA funds will have been obligated by the end of fiscal year 1969. Can the remaining \$5.2 million be carried over to fiscal year 1970 in lieu of NOA?

General STARBIRD. No, sir. As indicated by the chart, the approved program is still \$137.9 million.

Mr. MAHON. All right. Elaborate on that for the record.
(The information follows:)

The fund requirement to complete the approved fiscal year 1969 program is still \$137.9 million. The remaining \$5.2 million will be obligated after July 1969 against the fiscal year 1968 program and thus is not available to apply against the fiscal year 1970 TOA.

Mr. MAHON. How much of the fiscal year 1969 PEMA program will have been obligated at the end of the current fiscal year?
(The information requested follows:)

It is estimated that \$314.2 million of the fiscal year 1969 PEMA program will be obligated by June 30, 1969.

Mr. MAHON. How much of the fiscal year 1970 PEMA program do you anticipate will be obligated during fiscal year 1970?

General STARBIRD. Substantially all, sir.

SAFEGUARD GROUND EQUIPMENT

TACTICAL SOFTWARE CONTROL SITE (TSCS)

Mr. MAHON. Now, let's talk about the ground equipment for the Safeguard system. Will the tactical software control site (TSCS) be located at Kwajalein or at the first Safeguard site?

General STARBIRD. No, sir. It is to be located at Whippany, N.J., which is at the location where the software is prepared. It is right close by the point so that the software can be moved over and tested on that center.

Mr. MAHON. Would you explain precisely what you mean by the utilization of the word "software" in the context of this discussion?

General STARBIRD. Yes, sir. Every one of our sites must be able to take data from the radar, digest that data and determine what is the nature of the target. In the case of our missile site radar they must also control our interceptors and direct the detonation of the interceptors. The software is the set of programs that enable the data processor in that radar to carry out this identification and, as directed, interception. Software is the program, the detailed program that enables the hardware, in other words, the data processing machine, to carry out the functions it is expected to accomplish.

COST AND USE OF TSCS

Mr. MAHON. What is the cost of the tactical software control site and what will it be used to test?

General STARBIRD. The estimated cost of it is \$45 million. It will actually take every piece, every package of software and test the software before it is sent out to the site. Now, that is a little of a technical jargon, but for each type of attack, one from the North, say, one from the submarines, there is a separate program that must go into the computer and be there available to meet that attack if it occurs. Each one of these programs for each site will be tested out and checked out at the tactical software control site.

PAR FOR FIRST SAFEGUARD SITE

Mr. MAHON. You have obligated earlier year funds for the first PAR and its data processor. Is this located at Kwajalein or will it be deployed at the first Safeguard site?

General STARBIRD. No, sir. It will be deployed to the first Safeguard site.

Mr. MAHON. Will these Safeguards sites be constructed simultaneously?

General STARBIRD. No, sir; they are successively started. For example, the first one would be started on construction late in this calendar year, in some of its advanced construction, whereas the next one will not start until mid-1970.

Mr. MAHON. Where would the first one be?

General STARBIRD. The first one would be at Grand Forks, N. Dak.

Mr. MAHON. The software program would enable you to cope with the threat of a submarine-launched missile. Now, how far would you be at Grand Forks from any place where such a missile could be launched?

General STARBIRD. Actually, Grand Forks itself is, as I remember it, about 1,200 miles from the closest point a sub could launch toward it. Some of the subs have a 1,500-nautical-mile range. The initial package of software will not have any extensive sub-launched capability in it. Only if we add a sub-launched capability throughout would it be brought to its full capability.

Mr. MAHON. Will the \$11.2 million for the first PAR and its data processor complete the funding for this equipment?

General STARBIRD. That will complete it.

Incidentally, sir, I should add that there was extensive funding in the prior year, but with the change in deployment some change, particularly in the data processor of that PAR, was necessary. The \$11.2 million is for that purpose.

Mr. MAHON. Clarify that for the record.
(The information follows:)

In addition to augmentation of the PAR data processor the \$11.2 million includes the cost of equipment to be purchased with PEMA funds and installed by the Corps of Engineers and test equipment to be used on site. This will complete the procurement of hardware for the first PAR but does not pay for its installation and checkout which will be funded in the years required.

EQUIPMENT FOR CENTRAL TRAINING FACILITY

Mr. MAHON. You mentioned that \$15.9 million of fiscal year 1970 funds will be used to buy training equipment for the training facility. Where is the training facility located?

General STARBIRD. The central training facility is at Fort Bliss, Tex., as a part of the Army Air Defense School that is there. This will buy various pieces of training equipment. I would like to insert the details for the record.

(The information follows:)

Various mockups and portions of tactical equipment configured as training devices for the missile site radar, Spartan missile and tactical support equip-

ment (generators, load sensing devices, etc.) for formal practical instruction during resident training, examples of which are:

- MSR trainer digital group
- MSR trainer interconnector and model group
- MSR simulation equipment
- Load sensing governor training device
- Centrifugal training device
- Spartan trainers
- MSR trainer antenna group
- MSR trainer transmitter group

Mr. MAHON. Would this complete the equipment for the facility?

General STARBIRD. No, it will not. The total estimated cost is around \$45 million.

Mr. MAHON. What is the total cost of the training facility when completed? And do you plan others?

(The information follows:)

Current planning estimates reflect a total cost of \$61.25 million. Only one Safeguard training facility will be constructed.

NEED FOR PAR AND MSR PRE-PRODUCTION FUNDS

Mr. MAHON. Why are additional funds required for preparation for production and for support of production if we have already started producing the first PAR and MSR?

General STARBIRD. We actually must obligate for the full unit in a particular year such as fiscal year 1969. Though all of the critical dimensions of the item are frozen, some of the details of the manufacturing processes and for the components that have a shorter leadtime follow in the subsequent period of time.

PRE-INSTALLATION AND TEST FUNDS

Mr. MAHON. What is involved in the \$10.1 million for preparation for later installation and test in support of ground equipment?

(The information follows:)

The effort for fiscal year 1970 will entail the development of weapon system contractor site activation plans for the missile site radar, perimeter acquisition radar, and data processing equipment including site outline specifications, site assembly drawings, installation and test plans, system installation documents and system test documents for tactical sites. On-site surveillance team will be established to observe construction of the site technical facilities and to provide technical assistance to the site commander.

PRODUCTION BASE SUPPORT

Mr. MAHON. You are requesting \$800,000 in fiscal year 1970 for production base support. A total of \$74.6 million has been funded for this purpose in the last 2 fiscal years. Why are we already rehabilitating and repairing Government-owned industrial plant equipment at contractor plants?

General STARBIRD. This is not rehabilitating what has already been done. This is generally taking equipment that the Government owns, packing it, crating it, rechecking it and establishing it at the plant. I would like to provide the details of that \$800,000 for the record.

(The information follows:)

The \$800,000 in fiscal year 1970 for production base support includes the cost of packing, crating, handling and transportation, rehabilitation, repair and installation of production equipment selected from DOD inventories for use by the Western Electric Co. or its subcontractors for the Safeguard system. Also included is the cost of conversion to production of equipment which has been used during the research and development program.

Mr. MAHON. Will you provide a table showing the type of equipment and the plants involved in utilizing the \$74.6 million, and how the \$800,000 will be used in fiscal year 1970?

(The information follows:)

PRODUCTION BASE SUPPORT

(Dollars in millions)

Title	Cost	Purpose
Fiscal year 1968 and fiscal year 1969:		
Rehabilitation and packing, crating, handling, and transportation of production equipment.	\$0.040	Provide for packing, crating, handling, and transportation of production equipment selected from Government inventories for use by WECO and subcontractors.
Expansion, rearrangement, modification of Tarheel Army missile plant (TAMP).	5.376	The expansion of Safeguard production capability at Tarheel Army missile plant (TAMP), Burlington, N.C., by construction of a 2-story addition to the main manufacturing building and modification of existing Government-owned building.
Propellant manufacturing facilities and equipment for Sprint missile.	.323	Provide for an ammonium perchlorate oxidizer grinding facility for Sprint motor base grain manufacture at Radford Army ammunition plant, Radford, Va.
Facilities for production of propulsion units for Spartan missile.	2.760	This project is for construction and modification to provide manufacturing facilities for production of Spartan propulsion units at Longhorn Army ammunition plant, Marshall, Tex., a Government-owned facility operated by Thiokol-Chemical Corp.
Rehabilitation of Government-owned industrial plant equipment, Raytheon, Burlington, Mass.	.024	Rehabilitation and repair of Government-owned equipment required in support of Safeguard production.
Preproduction engineering of Safeguard weapons system.	66.1	This project represents preproduction engineering essential to the establishment of an economical production base for the Safeguard system.
Total, fiscal year 1968 and fiscal year 1969.....	74.623	
Fiscal year 1970:		
Packing, crating, handling, & transportation, rehabilitation, repair, and installation of industrial plant equipment.	.225	Provide for packing, crating, handling, and transportation, rehabilitation, repair and installation of production equipment selected from Government inventories for use by WECO and subcontractors.
Rehabilitation, repair, and modification of Government-owned equipment, TAMP, Burlington, N.C.	.169	Provide for rehabilitation, repair and modification of Government-owned equipment in support of the Safeguard program.
Rehabilitation and repair of Government-owned equipment, Raytheon Co., Burlington, Mass.	.050	Funds for rehabilitation and repair of Government-owned equipment required in support of the Safeguard program.
Modification of equipment for integrated circuit package production, WECO, Allentown, Pa.	.400	This equipment is being converted to support production of integrated circuit packages.
Total, fiscal year 1970.....	.844	

COMMUNICATIONS

Mr. MAHON. You are requesting \$3.3 million in fiscal year 1970 for Safeguard communications. Will you explain what is involved in this request?

(The information follows:)

These funds are required for the Phase I Safeguard sites to procure radio equipment used in training, operation, security and command and teletype equipment for the communications center for both classified and unclassified transmissions.

USE OF DEDICATED CIRCUITS

Mr. MAHON. Will Safeguard have a dedicated network of its own? (The information follows:)

Safeguard communications plans are based on leasing the majority of the services required from the common carriers through the DCS. Safeguard must procure its own encryption devices since these are not supplied by the carriers. Funds for extensions from the existing common carrier routes to the Safeguard sites will be provided by Safeguard. These routes will actually become part of the DCS. Within these services Safeguard will have some dedicated circuits in order to provide the speed of service, bandwidths, and reliability needed by the weapons system. These cannot be met within the existing common user facilities of the DCS.

PHASE 1 COST

Mr. MAHON. What is the total estimated cost of Safeguard communications for the two sites in Phase 1, including all appropriations? (The information follows:)

The estimated total communications costs for Phase 1 for fiscal year 1970-74 are as follows:

		[Dollars in millions]	
OMA		PEMA	
Fiscal year 1970	2.494	Fiscal year 1970	3.300
Fiscal year 1971	12.029	Fiscal year 1971	.500
Fiscal year 1972	7.341		
Fiscal year 1973	5.661		
Fiscal year 1974	5.748		

DIFFERENCE BETWEEN PHASE 1 AND PHASE 2

Mr. MAHON. I wish you would make it clear, General, just what the contrast is between Phase 1 and Phase 2, if you have not already done so.

(The information follows:)

Phase 1 of the Safeguard system includes only the first two sites in the Minuteman fields—Grand Forks Air Force Base in North Dakota and Malmstrom Air Force Base in Montana. The primary purpose of this initial deployment is to acquire experience in deploying, checking out, and operating a complete but small ballistic missile defense entity.

Phase 2 of the Safeguard system consists of up to twelve sites depending on the option selected. Three possible options have been defined.

1. Phase 2a would involve adding two more sites in Minuteman fields—Whiteman Air Force Base in Missouri and Warren Air Force Base in Wyoming. It would also involve a substantial increase in the number of Sprints in the Minuteman fields (plus more Spartans) and the installation of a site at Washington, D.C. for the protection of National Command Authorities. Phase 2a is designed to protect against a Soviet ICBM threat to Minuteman.

2. Phase 2b would involve the installation of all 12 sites plus the deployment of the improved Spartan. It is designed to meet the growing Soviet SLBM threat to our bomber force.

3. Phase 2c involves deployment of the improved Spartan and the installation of all 12 sites however the PAR's in southern California and Florida/Georgia would be omitted. It is designed specifically against the Communist Chinese ICBM threat.

4. The full phase 2 deployment could be chosen to respond to all elements of the threat discussed above.

R.D.T. & E.

Mr. MAHON. Now, with respect to research, development, test and evaluation, General, what contracts have been executed utilizing

R.D.T. & E. money for major component parts of an ABM system which can and will be utilized in the proposed operational system?

General STARBIRD. The primary contract is the contract with Western Electric, sir, and Western Electric has subcontracts with four major suppliers. I will put the details in the record.

(The information follows:)

Research and development, utilizing R. D. T. & E., money, for the Safeguard BMD system is accomplished under the prime contract DA-30-069-AMC-333(Y) with the Western Electric Co. as weapon system contractor. Western Electric has placed subcontracts with the following companies for development of major components of the system:

General Electric Co.—Perimeter acquisition radar.

Martin Marietta—Sprint.

McDonnell Douglas—Spartan.

Raytheon Co.—Missile Site Radar.

DEPLOYMENT OBJECTIVES

ONE VERSUS TWO SITES

Mr. MAHON. General Starbird, on page 2 of your statement you say that the objective of the deployment of the two approved sites is to provide us with "essential experience in the production, installation, checkout, test and operation of a ballistic missile defense entity." Since each of the two sites will have the same equipment—that is, PAR, MSR, ——— SPARTAN, ——— Sprint—could the basic objective you state be attained with only one site?

General STARBIRD. No, it could not, sir. The two sites are an entity in which the elements of one are operated in conjunction with the elements of another.

Let me give an example: The perimeter acquisition radar will make a detection of an incoming missile. It would then either continue to track or would, on command, pass the track to another radar, another PAR or MSR. It is this interplay between components that we are trying to prove by the putting in of the two sites, sir.

DEPLOYMENT ONLY AT KWAJALEIN

Mr. MAHON. Would the basic objective be better met by building all of the elements of the system in the Kwajalein complex and testing the entire system against inert warheads launched from Vandenberg Air Force Base and from FBM submarines?

General STARBIRD. All of the elements except for a PAR will be present and operating in 1970, mid-1970, making interception. Radars that are there resembling the PAR will be used to give interceptor information to the MSR.

I believe that the purpose would not be anywhere near as well realized by deploying, say, a PAR to go with the ones that are already there. These are prototypes. The experience in the deployment and checkout of a production-type item would not be gotten. Also, there would be a delay of probably 2 to 3 years in the first available operational site if this will be done.

TESTING THE SYSTEM

Mr. MAHON. How can you adequately test the system without tests using incoming reentry vehicles?

General STARBIRD. A system readiness verification subsystem is being developed as an integral part of the Safeguard system. The SRV subsystem injects into the Safeguard radar receivers electronic duplicates of the signals these radars would receive. Safeguard then responds to these signals as it would under real attack. This test system which will be available on site will adequately exercise the Safeguard system and provide senior air defense commanders with the readiness status of the system. In addition to system readiness verification exercises, live nonnuclear firing tests will be conducted from Kwajalein for the purpose of quality assurance and troop training. Finally, the radars will be tested continuously against satellites and all space debris. In cooperation with the USAF SPADAT system, each PAR maintains an accurate catalog of every orbiting object that passes through its coverage. Whenever such an object is detected in search, it is immediately recognized and rejected. It should be pointed out that the SRV injects its signals into the receivers without interfering with the real signals. Thus the PAR's are fully operational in the real world environment while SRV is testing the system.

(Additional classified information was furnished separately to the committee.)

Mr. MAHON. Do you plan tests of this type at the North Dakota and Montana sites?

General STARBIRD. The system readiness verification subsystem will be available at the North Dakota and Montana sites as well as all others that may eventually be approved. The SRV subsystem may perform its functions autonomously, testing a single MSR-defensive missile complex. Additionally, it may operate in a netted mode and test the readiness and reaction of the complete Safeguard system. The sites will, of course, track and exercise on space debris.

SOVIET TESTS

Mr. MAHON. According to your intelligence, have the Soviets tested all of the components of their ABM system as a unit in tests involving reentry bodies?

General STARBIRD. ———.

DEPLOYMENT WHILE UNDER DEVELOPMENT

Mr. MAHON. No prototype PAR will be built for testing; the tests of the MSR will begin in mid-1970, only nine of ——— test firings of Spartan have been accomplished, and only 30 of the planned ——— Sprint test launchings have been accomplished. Deputy Secretary of Defense Packard and others have talked of establishing new procedures under which there would be less concurrency—I underline this concurrency—in R.D.T. & E. and procurement of new weapons systems. It is widely recognized that too hasty commitment to production of items still under development has cost billions of dollars and often years of time. Would we have greater assurance of the proposed ABM if we tested the components for a longer time before starting deployment?

I would like for you to give a very good answer to that.

General STARBIRD. I think not significantly. Naturally, the longer you go in R.D.T. & E. the more you know about a particular component and about how the components will work together. But we have carried out tests of the components over an extended period of time. Because of the change in the deployment schedule we have dropped back in the deployment date but we have tried to hold our R.D.T. & E. dates the same as before. The degree of concurrency is substantially less for this deployment than it was for the Sentinel deployment.

DROP IN 1969 R.D.T. & E. FUNDING

Mr. MAHON. Chart 7 indicates a significant drop in R.D.T. & E. activity in fiscal year 1969. A total of \$383.9 million was programed in fiscal 1968 and \$400.9 million is requested in fiscal year 1970; but only \$311.5 million was programed in fiscal year 1969. What is the reason for this fluctuation in R.D.T. & E. funding?

General STARBIRD. Basically, the R.D.T. & E. dropped off in 1969 and was visualized as being somewhat lower in 1970. Under the Sentinel program, for example, in 1970 the R.D.T. & E. was about \$335 million, as I remember. However, we changed the threat and we had to incorporate modifications and the additional funds in fiscal year 1970 are to accommodate the R.D.T. & E. to take care of these revised threats.

1969 DEVELOPMENT AND TESTING PROGRAM

Mr. MAHON. Detail the development and testing program for each of the major system components in fiscal year 1969. What were the development and testing milestones, were they met, and were they met on schedule? What are the development and testing milestones for fiscal year 1970?

(The information follows:)

Sprint. The development and testing milestone for the Sprint missile in fiscal year 1969 was to demonstrate the performance objectives by flight testing 12 Sprint missiles. In addition, factory tests of the Sprint missile were conducted. The performance objectives were demonstrated on schedule in fiscal year 1969. Nine of the last 11 Sprint firings have been completely successful. Development flights—which began at White Sands Missile Range in 1965 are scheduled for completion in early 1970. Integrated system test firings will follow at Meck Island, Kwajalein missile range, beginning in calendar year 1970 and will interface the Sprint/MSR/data processing complex. Test objectives have been established. A total of _____ Sprint firings is scheduled for fiscal year 1970.

Spartan. The primary objectives for the Spartan missile in fiscal year 1969 and fiscal year 1970 were to develop, verify, and document the performance and integrity of individual missile end items and their ability to function as an integrated missile for application in the total weapon system. Missile firings have been underway at Kwajalein missile range since March 1968 with completion scheduled for _____ 1970. A total of _____ missiles will be fired to achieve these objectives. Nine of these missiles were fired through fiscal year 1968 and fiscal year 1969 with the remainder scheduled for completion in fiscal year 1970. Of the last nine Spartan firings, six have been completely successful, two partially successful, and one unsuccessful. Integrated system firings, less the PAR, will commence at Meck Island, KMR, in early 1970. The first intercept of a real target by Spartan is in the _____ of fiscal year 1970. A total of _____ Spartan firings is scheduled for fiscal year 1970.

PAR. Because the PAR design is considered to be well within demonstrated radar state of the art, no separate R. & D. model is being constructed. The first unit of this radar is planned to be on an operational site. The change from Sentinel to Safeguard therefore changed the initial site from Boston to Grand

Forks with a forecast delay in the first PAR of about a year. During fiscal year 1969 the contractor was engaged in detailed design of the radar including fabrication and testing of engineering models of components and subsystems. A brass-board model (the LEDM or limited engineering development model) of a portion of the radar is partially completed and is in use at the contractor's plant.

MSR. At the start of fiscal year 1969 (July 1968) the MSR equipment and its data processor had recently been installed in the building at Meck Island, meeting milestones established 2 to 3 years earlier. By September the transmitters, final tube, and RF lines had been successfully operated at full peak power and by November at full average power in accordance with the program schedule. Antenna performance and receiver sensitivity incentive tests were successfully completed in August. In September the full available power was transmitted through the array antenna face and by January this was brought up to full peak and average power. The radar equipment was in condition to perform operational tests by mid-fiscal year 1969 in accordance with earlier schedules although much detailed testing and resolution of component technical problems remained to be done during the rest of the year. Integrated testing of missile firings and firings against re-entry vehicles will begin in fiscal year 1970.

Data processor. The data processor hardware has met its milestones on schedule. At the beginning of calendar year 1969, a one processor unit and its associated equipment were being checked out at KMR, Meck Island. The installation of a second processor unit was completed in July 1968. The first processor and its initial software became operational in September 1968 and was ready to be used for development and debugging of the software that will be used for the test firings. In December 1968 the second processor became operational and the two processors demonstrated the capability to be used separately, one for hardware tests and one for software development. Software packages for test firings now being developed, installed and checked out.

SPRINT AND SPARTAN TEST FIRINGS

Mr. MAHON. Review separately the test firings of the Sprint and Spartan missiles. Indicate the date of the firing, the objectives of the firing, and the results.

(The information provided the committee is classified.)

WEAPON SYSTEM CONTRACT WITH WESTERN ELECTRIC

Mr. MAHON. What part of the \$318.6 million for the weapon system contract is for the Western Electric Co. over and above the sums for the four major subcontractors?

General STARBIRD. Approximately one-half, sir.

Mr. MAHON. Supply that for the record.

(The information follows:)

— of the Weapon system contract will go to the Western Electric Co.

Mr. MAHON. How much profit or fee is paid to Western Electric under the contract?

General STARBIRD. The 1970, of course has not been negotiated. The 1969 runs, as I remember, the percentage of 6.4 percent.

Mr. MAHON. Of gross expenditure?

General STARBIRD. Of the total contract cost; right.

Mr. MAHON. What is the total amount paid to Western Electric over and above the sums for major contractors since the ABM program was initiated?

General STARBIRD. Could I take that from the time of decision to deployment?

Mr. MAHON. Give us the information in the best form you can.

(The information follows:)

I have been able to develop the information, on the basis of your request, for research and development effort performed by the Western Electric Co. from the initiation of the NIKE-X program in fiscal year 1964 through fiscal year 1969 funding. The total amount in that contract, DA-30-069-AMC-333(Y), is \$1,091,774,699. Of this amount, Western Electric has placed \$1,071,426,009 with the major subcontractors and therefore the amount to Western Electric over and above the major subcontractor amounts is \$920,348,000. However, the ABM effort commenced in fiscal year 1957 under contract DA-30-069-ORD-1055 for research and development of the predecessor NIKE-ZEUS System; the total dollars under that contract was \$1,068,486,912, however, a breakout of subcontractor effort is not readily available and would take considerable time to develop.

Mr. MAHON. What total profit or fee has Western Electric made on this program?

General STARBIRD. I will have to add that up and run it out, sir.

(The information follows:)

The total fee in the research and development contract DA-30-069-AMC-333(Y) with the Western Electric Co. since its initiation in fiscal year 1964 through fiscal year 1969 funding is \$122,747,723.

Mr. MAHON. As the prime contractor, what profit or fee does Western Electric make on the sums spent with the major subcontractors?

General STARBIRD. The amount varies, sir. We are now operating under the Armed Services Procurement Regulations which vary the fee according to the type of work, Government investment, private investment, and the like. We are abiding by that guidance.

Mr. ANDREWS. You say, General Starbird, that Western Electric gets 6.4 percent profit on the gross?

General STARBIRD. I think it is 6.4 on the gross.

Mr. ANDREWS. On the gross amount involved. Now, with reference to their subcontractors, of course, they get a profit.

General STARBIRD. That is correct.

Mr. ANDREWS. Does that profit come out of that 6.4 percent?

General STARBIRD. No, sir, it does not. The 6.4 is on the gross, it is a composite, however with a much lesser fee assigned to the portion which is subcontracted than on that work which is done in house. About 1963, I think it was, procurement regulations were established that gave so-called weighted guideline procedures and stated how much would be on various types of work, depending upon type of work, the investment in terms of manpower and other factors that were involved. Now, Western Electric with regard to its subcontracts does a great deal of inspection, review of specifications, establishing directives, integration with other components, and the like.

Mr. ANDREWS. Of course, the subcontractor gets a profit.

General STARBIRD. He does.

Mr. ANDREWS. Does Western Electric get a profit on top of their profit?

General STARBIRD. He gets a payment of a fee which is based on the amount of work that Western has to achieve in-house with respect to that effort.

Mr. ANDREWS. Does he get that 6.4 percent, does Western Electric get 6.4 percent on the amount of work handled by the subcontractor?

General STARBIRD. He does not get 6.4 percent.

Mr. ANDREWS. Put something in the record to show what relation he has with the subcontractor and what the fee is for the subcon-

tractor and whether or not it is split with Western Electric, or whether or not you pay Western Electric. If so, how much is it percentage-wise?

General STARBIRD. We will do that.
(The information follows:)

The fee negotiated with the Western Electric Co. for the fiscal year 1969 research and development is 6.1 percent (not 6.4 percent as earlier stated). This percentage is a composite and covers all effort under the contract, including that performed by the subcontractors. However, it must be recognized that, while contract negotiations are on the basis of total dollars in fee, the Government develops its profit objectives as a basis of negotiations in accordance with the weighted guidelines procedures under ASPR 3-808 in which various fee ranges are assigned to various categories of cost in the contractor's proposal ranging from 1 to 15 percent on cost input to total performance. The weighted guidelines objective established for negotiations uses a percent at the lower end of the scale as the assigned weight on subcontractor effort.

WEAPON SYSTEM CONTRACT CONTRACTORS

Mr. MAHON. Will you break down the \$318.6 million by major contractor?

General STARBIRD. I will.
(The information follows:)

The breakdown of the \$318.6 million weapon system contract is as follows: Western Electric Co. _____, McDonnell-Douglas _____, Martin Marietta Corp. _____, General Electric _____, and Raytheon _____.

WEAPON SYSTEM CONTRACT FEE

Mr. LIPSCOMB. On the \$318.6 million for the weapon system contract would you itemize your point No. 7 rather completely? It is what you call the remainder, some \$49.7 million, for site operations, fee, contractors' overhead, certain maintenance documentation, orientation, and training. Can you detail that?

General STARBIRD. That varies. Site operation, for example, is the operational payments that we make to the Kwajalein Missile Range and the White Sands Missile Range for extra work we throw upon them.

Mr. LIPSCOMB. What about the fee?

General STARBIRD. The fee itself is the fee total for the \$318 million total contract. It is an estimated fee because it has not been negotiated.

Mr. LIPSCOMB. You may detail that.

General STARBIRD. The fee is estimated at this time to be _____ million based on the guidelines which I explained earlier to Mr. Mahon and Mr. Andrews.

IMPROVED THIRD STAGE FOR SPARTAN

Mr. MAHON. What amount will be spent on the development of an improved third stage for the Spartan in fiscal 1970? What is the estimated total development cost of the new third stage? For the record.

General STARBIRD. All right, sir.

(The information follows:)

In fiscal year 1970 we have included \$22.9 million. The total cost to develop and demonstrate this improvement is _____. An additional _____ will be required for to conduct system testing should there be a decision to incorporate the improved Spartan in the tactical deployment.

Mr. MAHON. How essential is the development of a new Spartan third stage?

General STARBIRD. It is essential, should the SLBM's develop a _____ capability. _____.

It has several other basic objectives. The procurement decision will not be made on the improved Spartan until the threat had been further examined.

DATA PROCESSING

Mr. MAHON. How does the \$58.4 million allocated to data processing compare with the sum spent in this area in the 2 previous fiscal years? What are the major contractors in this area?

(The information follows:)

The allocated funds in the area of data processing in fiscal years 1968 and 1969 were \$47.9 and \$35.7 million, respectively. The major contractors in the data processing area are Western Electric Co., Bell Telephone Laboratories, International Business Machines, Lockheed and UNIVAC Division of Sperry Rand Corp.

IMPROVED MSR

Mr. MAHON. What is the estimated total cost and time required for the development of the improved version of the MSR?

(Information supplied follows:)

The estimated total cost and time required for development of the IMSR—million and—months.

Mr. MAHON. In what ways is the first generation MSR deficient so that an improved version is required?

General STARBIRD. It is not deficient; and for the threat that we believe could develop in the mid-1970's, it is adequate. However, as I indicated earlier this morning, _____ it might be necessary to improve the MSR _____.

COST OF SITE OPERATIONS

Mr. MAHON. On page 11 of your statement under item 7, how much of the \$49.7 million is for site operation? What site operations are referred to?

Provide that for the record.

(The information follows:)

Of the \$49.7 million, \$16.4 million is for site operations in support of the development contractor's effort at White Sands Missile Range and the Kwajalein Missile Range.

Mr. MAHON. How much of the \$49.7 million is for fee, and to whom is the fee paid?

(The information follows:)

Of the \$49.7 million, _____ is estimated to be the fee to the prime contractor—Western Electric Co. However, it should be pointed out that this is sensitive

procurement information since the contract has not been negotiated and information should not be available to the contractor which would indicate the profit objective developed by the Government as the basis for contract negotiations.

CIVILIAN PERSONNEL FOR SYSTEM SUPPORT

Mr. MAHON. How many Government civilian personnel are paid from the \$28.4 million for system support? How much of the \$28.4 million is for the pay and allowances of Government civilian personnel?

General STARBIRD. Slightly above \$4 million. The numbers of personnel are about 205.

PERSONNEL ASSIGNED TO SAFEGUARD R.D.T. & E.

Mr. MAHON. How many military personnel support the R.D.T. & E. part of the Safeguard program? What is the sum for pay and allowances for these military personnel?

General STARBIRD. The fiscal year 1970 currently authorized military end strength to be allocated within the Safeguard program for support of the total R.D.T. & E. effort is estimated to be 205. The pay and allowances for these military personnel is estimated to be \$1.7 million.

Mr. MAHON. Compare the number and cost of civilian and military personnel in the program in fiscal years 1968, 1969, and 1970.

(The information follows:)

CURRENTLY APPROVED AUTHORIZED END STRENGTH AND RELATED COSTS PLANNED FOR SUPPORT OF THE SAFEGUARD RDTE EFFORT

[Dollar amounts in millions]

	Fiscal year 1968 ¹		Fiscal year 1969		Fiscal year 1970	
	End strength	Cost	End strength	Cost	End strength	Cost
Military.....	113	\$0.6	168	\$1.1	205	\$1.7
Civilian.....	399	4.9	453	7.4	467	8.6
Total.....	512	5.5	621	8.5	673	10.3

¹ Operating (on-board) strength as of June 30, 1968.

² Excludes 103 Safeguard spaces providing range support and funded by other than Safeguard funds.

SAFEGUARD SYSTEM EVALUATION AGENCY (SAFSEA)

Mr. MAHON. How many military and how many civilian personnel are in SAFSEA?

(The information follows:)

The operating (on-board) strength of SAFSEA as of May 31, 1969 was as follows:

Officers/WO	77
Enlisted	62
Civilian	249
Total	388

Mr. MAHON. What part of the SAFSEA cost of \$13.2 million is for pay and allowances of civilian personnel? How does this amount compare with fiscal year 1968 and fiscal year 1969?

General STARBIRD. Of the \$13.2 million, about \$4.5 million is for civilian pay allowances, travel and per diem. For fiscal years 1968 and 1969, the comparable amounts are \$1.26 million and \$4.02 million respectively.

Mr. MAHON. To what extent does the SAFSEA effort duplicate the prime contractor's efforts?

General STARBIRD. SAFSEA's effort does not duplicate the prime contractor's efforts. The U.S. Army Safeguard system evaluation agency is established to provide a single organization for performing evaluation of the Safeguard system independent of the Safeguard System Command and its contractor organization. SAFSEA performs the same type evaluation function that is performed on other Army development projects by the Army Materiel Command's (AMC) Test and Evaluation Command (TECOM). SAFSEA has access to and will use test data generated by the prime contractor to minimize cost but it will evaluate this data independently.

Mr. MAHON. What contracts at what amount are included in the funds for SAFSEA?

General STARBIRD. A computer services contract exists with UNIVAC that provides an option to continue the services for one year. The fiscal year 1970 R.D.T. & E. program provides _____ to exercise this option. In addition, Safeguard will utilize the services of the Army Research Office for \$65,000 and the Human Research Office at George Washington University for \$75,000. Approximately \$7.2 million is also included in the SAFSEA funds to provide for a tactical data processor and programing under contracts yet to be selected.

MISSILES FOR TEST SUPPORT

Mr. MAHON. How many missiles of what types will be purchased with the \$34.3 million allocated to this purpose under "Test Support"?

General STARBIRD. The Army has implemented a concept of utilizing surplus ICBM (Minuteman) boosters and SLBM (Polaris) boosters and targets for testing the Safeguard system. ICBM—Nine Minuteman boosters will be modified in fiscal year 1970 and four targets will be launched in fiscal year 1970. SLBM—Four Polaris boosters and associated reentry hardware will be secured and modified in fiscal year 1970 for launching in fiscal year 1971.

REIMBURSEMENT TO NATIONAL RANGES

Mr. MAHON. Describe the "special support" for which you wish to reimburse the national ranges in the amount of \$6.4 million. How does this amount compare to sums for the same purpose in fiscal year 1968 and fiscal year 1969?

General STARBIRD. White Sands Missile Range and Kwajalein Missile Range are reimbursed for direct test support performed for the Safeguard program to accomplish test objectives. This support includes such areas as laboratory tests and services, reception-recording-processing of test data, leased communications, logistical support, miscellaneous supplies and facility maintenance solely used by Safeguard. The amounts reimbursed these ranges in fiscal years 1968 and 1969 were \$5.1 and \$3.6 million, respectively.

PAR TESTING PROGRAM

Mr. MAHON. Since the PAR radar will not be built on the Kwajalein test site, describe the testing program for PAR.

General STARBIRD. The PAR equipment will be extensively tested for proper performance in the same way that would be done if it were installed at Kwajalein Missile Range. The operating functions of PAR with its digital computer and software will be tested by extensive space debris simulation of the many different types of engagement situations. Such a simulation program would be the primary method of determining proper PAR operation under any circumstances.

OTHER R.D.T. & E. SUPPORT

Mr. MAHON. What R.D.T. & E. support for the Safeguard program is included in the fiscal year 1970 budget under other line items?

General STARBIRD. Sir, the national ranges supporting Safeguard, White Sands Missile Range and Kwajalein Missile Range budget for services common to all range users. These services include such items as maintenance and operational management, technical services in support of test operations, range security-safety and fire protection; transportation; communications; and community support services in the case of Kwajalein. Approximately one-third of Kwajalein's effort and about 6 percent of the White Sands Missile Range effort are in support of Safeguard. Also, included in the Navy and Air Force fiscal year 1970 budget are Navy and Air Force line items supporting the Safeguard test target program. Additionally, the U.S. Army Materiel Command is budgeting for base operations support of Safeguard activities at Picatinny Arsenal and for SAFSEA at White Sands Missile Range.

STUDIES AND ANALYSES

CONTINENTAL U.S. DEFENSE ALTERNATIVE STUDY

Mr. MAHON. General Starbird, the committee has noted that with the advent of Sentinel, and now Safeguard, a significant number of study contracts have been awarded, a number of which appear to deal with areas that should have been studied prior to now.

An example is the "Continental U.S. defense alternatives study," funded at a level of \$550,000. It has been stated that this study is needed to present in a single study effort an integration of ballistic missile defense concepts and alternatives. The committee understands that this is a follow-on to a similar study completed in December 1968.

What was the cost of the latter study, and how do you explain the need for the present proposed study?

General STARBIRD. I would like to provide that for the record, sir, I want to recheck the facts on it. I am not thoroughly familiar with that particular one as identified.

Mr. MAHON. All right.

(The information follows:)

The continental U.S. defense alternatives study completed in 1968 cost \$300,000. This study and the follow-on study were conducted for the U.S. Army Advanced Ballistic Missile Defense Agency (ABMDA), not for the Safeguard System Command. This agency, which conducts advanced ballistic missile defense

research and development, works closely with the Safeguard system office but is entirely separate and reports to the Army chief of research and development. The 1968 study effort was limited in scope in that it covered only the possible use of improved Spartan or Sprint collocated at or remote from the system radars. The follow-on study has been designed to investigate a full range of alternative ballistic missile defense techniques. It will include a determination of cost and effectiveness data for near term Safeguard growth options; and will examine in detail more advanced alternative ballistic missile defense techniques. The study effort is necessary to insure that growth options to Safeguard both in the near and far term are examined in detail from both a cost and effectiveness standpoint.

STUDY OF DEPLOYMENT STRATEGY AND INTERCEPTOR COMMITMENT TACTICS

Mr. MAHON. Another is the study of deployment strategy and interceptor commitment tactics for selected ballistic missile defense models, which will cost \$200,000, and will include analyses of alternative offensive missile systems and alternative defensive antiballistic missile systems.

How does this study differ from the first one? Supply that for the record.

(The information follows:)

The study of deployment strategy and interceptor commitment tactics for selected ballistic missile defense models was conducted for the Office of the Secretary of Defense through the Advanced Research Projects Agency (ARPA), not for the Safeguard System Command. The study was designed to carry out independent OSD evaluation using generalized war-gaming models. The Advanced Ballistic Missile Defense Agency (ABMDA) continental U.S. defense alternative study was primarily concerned with the definition of new and different technical approaches to BMD, not with war-gaming analyses.

SAFEGUARD COMMAND REENTRY TARGET DISCRIMINATION SCHEME

Mr. MAHON. There is another study entitled "Safeguard Command Reentry Target Discrimination Scheme," which is to develop a discrimination scheme for detecting and characterizing ballistic missile defense system targets during their early reentry into the earth's atmosphere. The cost of this study is \$300,000.

It would appear that the Air Force and NASA would have considerable data in this area and that this kind of study would already have been made or at least comparable studies. Has NASA been contacted in regard to this?

General STARBIRD. We do contact NASA in connection with this. I believe this is an advance study looking at a later period in the Safeguard.

Mr. MAHON. Will you answer for the record?

General STARBIRD. Yes.

(The information follows:)

This study was conducted for the Advanced Ballistic Missile Defense Agency (ABMDA), not for the Safeguard System Command. It is part of an integrated program to develop algorithms and computer programs to make it possible to use the known discriminants in real time in an advanced ballistic missile defense (BMD) system. There is quite a bit of information and measured data available on possible and theoretical discriminants generated by the U.S. Air Force and NASA, as well as by previous Army effort. While NASA has only the problem of detecting cooperative or friendly, usually single, objects during reentry, ABMDA's mission is to provide the technology that may be required to update the present

BMD system and for possible advanced BMD systems. All the data developed by other efforts are know to the Army, and its contractors, and utilized by them where applicable.

STUDY CONTRACTS

Mr. MAHON. Will you provide for the record a list of all studies awarded since fiscal year 1968, together with their titles and cost? Also provide for the record the amount spent in previous years on studies of this nature under the Nike-X program.

(The information follows:)

The information on studies awarded since fiscal year 1968 is contained in the following tables:

Study contracts awarded by Safeguard System Command using Sentinel/Safeguard funds

<i>Title</i>	<i>Cost</i>
<i>Fiscal year 1968:</i>	
Management information development study-----	\$101,728
Sentinel evaluation training study-----	57,700
Phased array radar and missile cost model study-----	13,871
Communications security study-----	22,071
PERT-analyses and evaluation of factors influencing better data management programs-----	154,935
Total fiscal year 1968-----	350,305

<i>Fiscal year 1969:</i>	
Threat analysis study-----	299,645
Data processing study-----	16,500
Study for antimissile missile system (this study effort covered 22 assorted specific studies of system effectiveness and performance)-----	2,443,665
Sentinel training program study-----	2,718,678
Sentinel site operations advisory study-----	608,216
Lethality and vulnerability studies-----	920,634
Sentinel evaluation training study-----	10,237
Sentinel growth studies-----	99,373
Product assurance program master plan-----	273,400
Evaluation of radar performance study-----	46,975
Study of nuclear disturbances on safeguard radar-----	58,966
Radar degradation studies-----	361,537
Total fiscal year 1969-----	7,857,826

Study contracts awarded by Safeguard Logistics Command using Sentinel/Safeguard funds

<i>Title</i>	<i>Cost</i>
<i>Fiscal year 1969:</i>	
Study of maintenance data volume requirements-----	\$59,723
Integrated time-phased logistics plan management study-----	18,800
Total fiscal year 1969-----	78,523

Study contracts awarded by Corps of Engineers using Sentinel/Safeguard funds

<i>Fiscal year 1968:</i>	
System effectiveness prediction study-----	\$100,000
<i>Fiscal year 1969:</i>	
System effectiveness prediction study-----	212,000
Facilities criteria development study-----	761,400
Facilities criteria development/hardness testing study-----	60,000
Task and skill analyses, tactical support equipment-----	667,275
Total fiscal year 1969-----	1,700,675

*Study contracts awarded by U.S. Army Missile Command using
Sentinel/Safeguard funds*

Fiscal year 1969 :

Phase 2 SPRINT circuit analysis study----- \$80, 000

*Study contracts awarded by Defense Atomic Support Agency using
Sentinel/Safeguard funds*

Fiscal year 1969 :

Erosion effects on interceptor----- \$61, 034

*Study contracts awarded by U.S. Atomic Energy Commission (MEWTA) and
White Sands Missile Range*

Fiscal year 1969 :

Preliminary MSR vulnerability study----- \$71, 000

*Study contracts awarded by U.S. Army Strategic Communications Command,
using Sentinel/Safeguard funds*

Fiscal year 1969 :

EMP test program integration study----- \$393, 297

EMP susceptibility test program study----- 428, 300

Communications system vulnerability analysis study----- 626, 802

Theoretical investigations of EMP simulator----- 28, 411

Total fiscal year 1969----- 1, 476, 810

*Study contracts awarded by U.S. Army Air Defense Command, using Sentinel/
Safeguard funds*

Fiscal year 1969 :

Nuclear effects study----- \$242, 215

CONUS-wide defense digital simulation study----- 33, 629

Safeguard/Sam-D interface study----- 139, 330

CONUS-wide war games model (CADENS)----- 14, 731

Total fiscal year 1969----- 429, 905

Study contracts awarded by Picatinny Arsenal using Sentinel/Safeguard funds

Fiscal year 1969 :

Sprint AK component feasibility studies----- \$148, 951

Sprint warhead system analysis study----- 235, 885

Spartan warhead system analysis study----- 209, 898

Spartan AK component feasibility study----- 446, 291

Total fiscal year 1969----- 1, 041, 025

Grand totals Sentinel/Safeguard studies awarded since fiscal year 1968

1968 ----- \$450, 305

1969 ----- 12, 796, 798

The approximate amounts obligated in previous years on study contracts under the Nike-X engineering development program are shown below. Due to retirement of detailed contract records, it is not possible to determine with certainty from available contract registers that all study-type contracts for these years have been identified.

*Approximate amounts obligated for study contracts under Nike-X engineering,
development and Sentinel/Safeguard programs fiscal year 1964-68*

Fiscal year :	<i>Approximate obligations in thousands</i>
1964 -----	\$3, 791
1965 -----	6, 331
1966 -----	6, 621
1967 -----	6, 923
1968 -----	9, 047

COMMUNICATIONS SYSTEMS TEST PROGRAM

Mr. LIPSCOMB. General, according to a Defense press release dated June 9, 1969, the Kaman Nuclear Corp., Colorado Springs, Colo., received a \$1,261,898 modification to an existing contract for acquisition of part II of an EMP study for Safeguard communications system test program. The modification is to the Safeguard Systems Command contract DA-HC-60-69-C-0061.

We have been studying this problem for years. In fact, a person might believe the libraries are full of such studies.

Exactly what is Kaman Nuclear Corp., doing under this study contract?

General STARBIRD. One of the things that we are anxious to prove is the commercial communications system which was built over a period of years is _____.

Kaman is an organization which can do something that the Army does not have the capability of doing itself, and that is accomplishing a test program on typical commercial communications stations, on typical sections of cable, and the like, to prove that the facilities can withstand this type of pulse.

If we found we could not use parts of the commercial system, which is a gridded system, then it would be necessary to install hardened cables or a substitute therefor, hardened microwave, between our PARs and our MSR's.

This is to conduct a test program in conjunction with the investigation of electromagnetic pulse vulnerability.

Mr. LIPSCOMB. What is Kaman's expertise or capability?

General STARBIRD. They are one of about three organizations which have studied, which has conducted experiments on and carried out analyses on nuclear phenomena over a period of years. This particular problem that they are looking at now is one which neither they nor others have extensively examined.

Mr. LIPSCOMB. What is the total cost of the contract?

General STARBIRD. I would like to provide that for the record, sir. (The information follows:)

The total cost of the Kaman contract DA-HC-60-69-C-0061 is \$1,048,858.

Mr. LIPSCOMB. Hasn't the Strategic Air Command studied this?

General STARBIRD. They have, and we have borrowed SAC's people. However, SAC's problem is _____. We are trying to use a commercial system, and we believe that for our system it will work satisfactorily, but it is necessary to prove this.

Mr. LIPSCOMB. How about the DCA or the DCS communications?

General STARBIRD. For the DCA-DCS communications, the gridded system will work, but it works under this kind of conditions, sir: _____. We had examined the DCS-DCA system, and we have planned and developed a commercial system to meet the kind of requirement that DCA-DCS has.

However, we are talking about a system where the interception can be occurring in a period of _____ and we cannot afford to lose communications during that period.

Mr. LIPSCOMB. What was involved in part I of the contract with Kaman, and what was done with the results? What were the recommendations and conclusions?

General STARBIRD. I would like to put that in the record.
(The information follows:)

Part 1 of the contract with Kaman was to prepare detailed planning for an EMP test program, to include the analysis effort, data acquisition and reduction effort, and selection of the types of field and laboratory tests to be conducted. Based on this we determined how to proceed with the actual analysis and testing.

General STARBIRD. A major part of the part II effort is actually the design of the equipment to be used for the tests and for the procurement of the equipment for the testing.

INTERCEPTION OF INCOMING MISSILES

Mr. LIPSCOMB. On page 4 of your statement you talk of beginning in mid-1970 the interception of incoming target ballistic missiles fired into the atoll.

I do not think it is quite clear what this is all about.

General STARBIRD. The missile site radar which I spoke of, which is at Meck Island in the Kwajalein Atoll, is now being checked out, and in the first quarter of 1970 will start launching and controlling the Spartan and Sprint tests that we make after that time.

Within a quarter thereafter—in other words, by mid-1970—we will actually start firing from Vandenberg, ICBM's with inert warheads, — firing those warheads at the Kwajalein Atoll and firing interceptors to make mock interceptions.

We initially will do that with single interceptors.

However, after a period of time, it will be made —. The incoming ballistic missile re-entry vehicles fired from the west coast and IRBM's fired from a Navy test launching ship will be made to have re-entry vehicles to include — so as to insure that all elements of the system can handle all the details of any type of attack.

Mr. LIPSCOMB. What is the \$34.3 million necessary for?

General STARBIRD. That is for the target missiles. The target ICBM's and IRBM's are generally ones and I think entirely ones which are surplus to the Navy and the Air Force needs, surplus in the sense that we either have one that is no longer needed or, alternatively, they want to fire one for some other purpose, and we ride their firing.

However, we must pay for what amounts to the out-of-pocket costs involved, the checking out of that missile to see that it is in satisfactory condition, provided they were not going to fire it anyway, the changing of the reentry vehicle to meet our requirements, the telemetry, the instrumentation. That is what that \$34 million is for, sir.

Mr. LIPSCOMB. Thank you, Mr. Chairman.

OPPOSITION TO NORTH DAKOTA SITE

Mr. ANDREWS. General, you are planning sites in North Dakota.

General STARBIRD. Right, sir.

Mr. ANDREWS. I have been reading where the Governor and other citizens of North Dakota are very much opposed to the location of those sites. Of course, they cannot stop the Federal Government from going in there and making that installation, but will that affect your program in any way? You would more or less be an unwelcome guest, would you not?

General STARBIRD. I believe the Governor has expressed himself in opposition to the program. Certainly we would prefer that everyone favored the program, but many, for reasons that they thoroughly believe in, do not favor it.

In this particular case, the sites themselves are selected there because that is where the Minuteman is. We want to place our sites so as to protect portions of the Minuteman complex there.

Mr. ANDREWS. That is the purpose of your program.

General STARBIRD. That is correct.

Mr. ANDREWS. What effect will this opposition to the location of the sites in that State have on your program, if any?

General STARBIRD. The sites that we contemplate there are relatively well known. We would, of course, immediately upon favorable action by the Congress on the deployment, make contact with the Governor and anyone he indicated he wanted us to contact, to explain in full what was going to be done in that area.

Mr. ANDREWS. Aren't you planning now to go forward with your sites?

General STARBIRD. The Secretary of Defense said we would not go forward, that we would take no action which was in the nature of site acquisition or construction, pending favorable action by the Congress.

Mr. ANDREWS. Are you asking in this budget request for deployment money, or only R. & D. money?

General STARBIRD. No, sir. For deployment money as well as R.D.T. & E. The MCA funds already appropriated to us have not been obligated, except certain ones that were obligated on the old deployment. The obligational authority and the appropriation will be adequate to carry out the work that needs to be done in fiscal year 1970.

SAFEGUARD AUTHORIZATION

Mr. ANDREWS. One further question to clarify my own mind about this matter. This program has been authorized by Congress; has it not? I read from page 42 of the Safeguard antiballistic missile system hearings:

Authorization for procurement of Sentinel was first contained in Public Law 90-500, September 20, 1968. It was explained in House Report 1645, July 5, 1968, at page 48. * * *

Funds for this procurement authorization for fiscal year 1969 were contained in Public Law 90-580, October 17, 1968 * * *. The Senate committee outlined the program on pages 5 and 30 of Senate Report 1576, September 19, 1968. * * *

Construction for Sentinel, later called Safeguard, was first authorized by Public Law 90-110, dated October 21, 1967, under the heading "U.S. Army Air Defense Command—Conus—Various Locations, Operational Facilities, and Utilities, \$64,846,000."

From what I read, it seems to me this program has already been authorized and money has been appropriated for certain phases of it. Why the debate in the other body? What are they going to debate over there?

General STARBIRD. I cannot answer that, sir. The Secretary of Defense did say that he would not go forward with actual site acquisition or construction.

DECISION REGARDING FURTHER DEPLOYMENT

Mr. ADDABBO. On page 2 of your statement, you speak of the President making his first review as to the necessity of further deployment by January 1, 1970, but on page 4 you speak of tests on the Spartan and the Sprint not being started until the first quarter of 1970 and going into mid-1970.

How could we get a proper evaluation in January of 1970 if you do not conduct any of these test launchings and find out if we have a workable system until the first quarter or mid-1970?

General STARBIRD. We are presently conducting test launches. This is intended to point out that if we move our tests in the case of the Sprint from White Sands to Meck Island where we have a prototype missile site radar in 1970—

Mr. ADDABBO. These are still tests. In other words, you are testing at White Sands. We do not know if we have a workable unit. You are still testing in 1970. You talk about further deployment is possible in January 1970.

General STARBIRD. We are convinced from the testing accomplished to date that the missiles will accomplish their purpose. It is desirable and necessary to continue to check out larger and larger increments so as to make sure, if there are bugs there, that we eliminate those before we are in heavy production.

DEPLOYMENT BASED ON TEST RESULTS

Mr. ADDABBO. On page 5 you speak of ——— launchings, nine firings, of which six have been fully successful, two partially successful, and one unsuccessful.

Would you say that is a successful program when we are talking about actual deployment?

General STARBIRD. For the initial phase of a missile program, that is a very high performance rate. In all three of those partial successes or failures, we know what the cause was. The cause in one case was an electronic part. We have fixed that part. In one case it was a power unit and was apparently due to a problem in the burning of the fuel that drives a small power unit. This is still under examination for repair. We believe we know the answer to that.

These high-pressure units have been fired in the Nike-Zeus. The total number of firings was 152. This was a modified design to go into a somewhat larger Spartan.

Mr. ADDABBO. What is the relationship between launchings and firings?

General STARBIRD. They are synonymous. When I dictated it, I said "firings," and I did not change it. By "firings" and "launchings," we mean the same thing.

Mr. ADDABBO. However, you speak of a predeployment test program of ——— launchings, but you have only nine firings.

General STARBIRD. That is nine fired to date of the ——— launchings programed.

Mr. ADDABBO. In other words, the total test program will be ———.

General STARBIRD. Right, sir.

Mr. ADDABBO. On page 8 of your statement, in the last line under sections C you say :

Should permit us a TOA of \$97.1 million to accomplish construction in time to meet the Phase I site requirements.

Why do you say "should" and not "will"?

General STARBIRD. It should be "will." "Will" is the better word.

IMPROVED MSR

Mr. ADDABBO. On page 11, subparagraph (4), you say, "Continued development on the MSR including operation of the Meek prototype will cost approximately \$11.4 million, and work on an improved version of the MSR to handle later threats will cost about \$9.5 million."

If you anticipate \$9.5 million, why can you not incorporate the later expenditure into the present development, rather than spend \$11 million now and an additional \$9.4 million later?

General STARBIRD. The \$9.5 million is actually a part of a program that will run about \$25 million to design the advanced missile site radar. It is actually to design it as a modification to be made if we ever have to incorporate this added capability for the more advanced threat. We need to do that design basically, and particularly this part of the design, in this year because the structures themselves have to be such as to accommodate this modification. So, this work is largely connected with design to a point where we are certain that the structure can accommodate the improved MSR as well as the current design.

Mr. ADDABBO. You say the prototype is costing approximately \$11.4 million, and that may not be utilized at all?

General STARBIRD. No, sir. We will proceed with the MSR except for the structure, similar basically to the one which is at Kwajalein. Specifically, it is one with a 13-foot diameter face. However, we want to make this so, should it ever become necessary to increase the range against a smaller threat re-entry vehicle, we can do this without having to tear down and start over again from scratch.

This is to design it to a point where we know we could incorporate it if we ever had to.

PAR VERSUS OVER-THE-HORIZON RADAR

Mr. ADDABBO. PAR requirements are shown as \$25.7 million. Some time last week when we had the Air Force R. & D. before us, they talked about I don't know how many millions of dollars for the over-the-horizon radar. Can this not be incorporated as part of the PAR research?

General STARBIRD. No, sir. That is a special radar setup. This does not have the extensive capability or surety that the PAR must have. The PAR must be able to track many objects at the same time with a high degree of accuracy so as to forecast where the interceptor should be when it goes up.

CONTRACTOR'S OVERHEAD

Mr. ADDABBO. Further on page 11, you state, "The remainder, some \$49.7 million, for site operations, fee, contractor's overhead . . ." What is meant by contractor's overhead? Is that the contract price for work they are doing?

General STARBIRD. The payments that are made to a contractor which are not directly distributable to a piece of work under a contract such as these are of three types: for his fee, which covers his profit and some other functions; for his general engineering; and for his general and administrative costs.

Certain of his departments do work for this project and other Government projects, and that is determined by an audit and is allocated according to a formula, rather than attempting to go in and see how many men in, say, the accounting office or the general engineering office are attributable to a specific piece of work.

That is what we meant by contractor's overhead. It is a combination of general engineering and his general and administrative.

Mr. ADDABBO. In other words, it is more or less the contractor's allocated costs rather than an overhead charge?

General STARBIRD. That is what it refers to.

SAFEGUARD SYSTEMS EVALUATION AGENCY

Mr. ADDABBO. On page 12, subsection e, you speak of 400 military and civilian personnel as the requirement for SAFSEA at a total cost of \$13.2 million. This is not all for salaries, I presume.

General STARBIRD. You are right, sir. When you come to the salary part of it, the salary, per diem, and the like, are around \$4.5 million.

Also included, though, is certain contract procurement. The main item of procurement intended is to procure a portion of one of the tactical data processors. This agency will conduct evaluations for me and for the Army as to whether there are any problems in those software packages in the program or in the hardware, and they will look at means of casting the capability to a later time frame as well. That is their primary cost.

I can add the rest of the costs in a breakout for the record.

Mr. ADDABBO. I would appreciate that.

(The information follows:)

In addition to the \$4.5 million just mentioned here and approximately \$8.5 million for contracts previously mentioned, \$0.2 million is for office equipment and general supplies.

FACILITY AMORTIZATION

Mr. ADDABBO. On pages 13, 14, and 15, ground equipment, in each one you have a subsection for facility amortization. What do you mean by facility amortization?

General STARBIRD. In connection with this program, several of the contractors had to make modifications to their plant. In most cases it was a modification in the sense of changing their lines, putting in the special tooling that was required.

Initially, they asked that this be reimbursed by the Government and reimbursed at the time of actual construction.

In general, the Government tries to hold to a minimum its direct investment in such plants. However, it does try to reimburse the contractor fairly for the cost he bears.

Therefore, for particular items that the contractor has to install uniquely for this program, for modifications he makes uniquely for this program, we have a contract clause to reimburse him over a period of 8 years.

FUNDS FOR SYSTEM MANAGEMENT, DIRECTION, AND INTEGRATION

Mr. ADDABBO. Not taking time to go over each item individually, again on pages 13, 14, and 15, for each item you have management, direction, and integration of the overall program. In other words, these are dollar line items, but it would appear that they are for the same type of work. Is there a certain amount of duplication here?

General STARBIRD. No; there is not, sir. Generally that item applies to a subcontractor's plant. In some cases this is not entirely true, but generally where you talk of the Sprint, the management and integration is primarily the management and integration that must be accomplished by, in the case of the Sprint, the Martin Co. to bring all of its components together and show that they function right. There is overseeing of that by the prime contractor, and this is a lesser amount in those line items.

PRODUCTION BASE SUPPORT

Mr. ADDABBO. On page, 15, production base support:

Production base support is for rehabilitation, repair, and installation of Government-owned industrial plant equipment at contractor plants.

In previous hearings, and particularly in the Select Committee on Small Business, I was led to understand that once Government equipment was loaned or leased to a contractor, he was the one to maintain it. Why is there a cost of \$800,00 to the Government for rehabilitation?

General STARBIRD. I think this is primarily for a Government-owned, contractor-operated plant. It was taken out of storage and installed at a Government-owned, contractor-operated plant.

I have already stated that I would provide the details, not only for this \$800,000, but for the total over the past 2 earlier years when the cost was substantially heavier.

STUDIES AND CONTRACTS

Mr. ADDABBO. Referring to the \$4.8 million for contracts for site operation studies, nuclear effects studies, a management data system, et cetera. Hasn't this been done previously?

General STARBIRD. We do pick up the information secured from earlier studies and use that in connection with studies specifically directed to this deployment.

A major portion of this is a design, actually, and installing of the maintenance data system, which is the system that will provide the information to let the site be maintained at site.

Another thing that we particularly are interested in doing is to reduce the manpower on the site to the minimum. So, we are looking at site operations, and that is the site operations study, trying to balance off. If you make your equipment a little different, can you reduce the manpower and reduce the overall cost involved?

In general, these studies are unique studies, but do make use of information developed by others.

I can list all of those, if you wish. I think I have already been asked to do that.

MOBILE LAUNCHERS

Mr. ADDABBO. In studies that have been made, was a study made of the possibility of mobile launchers instead of a hard site ABM system?

General STARBIRD. We have looked into mobile systems, sir, and quite extensively. There is none right now that would have a feasibility for deployment in the same time frame. Whether it will ever prove to be feasible is a question.

The main problem here is, of course, the radar to carry out the function of protecting a hard site area. An area that needs a high degree of protection must have quite a large radar. ———

Mr. ADDABBO. What effect does the radar have on the mobile launcher? Isn't the radar separate and apart from the launcher?

General STARBIRD. In general, you must have the missiles so they can protect the radar. You also want the missiles within a reasonably short distance, like a very ——— of the radar because the radar has to pick up a missile as soon as it pops up and start guiding that missile. For that reason, they have to be in fairly close proximity, one to the other.

(Off the record.)

USE OF EXISTING MISSILES

Mr. ADDABBO. Has there been a study made of equipment that we have presently in the arsenal which could be used in place of a new missile such as the Spartan and the Sprint?

General STARBIRD. There have been extensive studies to my own knowledge dating over a period like nearly 10 years. They have examined the possibility of all of our current assets fulfilling the mission.

In general, the things that were built to deter and probably did deter to a degree bomber attacks, are too slow and too limited in capability and present warheads that would not be effective against an ICBM. This was found in many of the early studies.

Secretary Laird discussed briefly with you a suggestion that has been made that the Minuteman be given a dual capability, and some studies have been accomplished on that. However, again you run into the fact that to do this, modifications which do not now exist for the Minuteman would have to be developed, so the time scale is well down the road for the full capability to do more than serve as an adjunct to the Safeguard type of deployment.

The Navy has studied a potential system. The Air Force has studied airborne systems. Generally these make use of new items, not those already produced and available.

Mr. ADDABBO. Thank you very much, General.
Mr. WHITTEN. Mr. Davis?

SAFEGUARD AUTHORIZATION

Mr. DAVIS. General, I should like to get clarification of the discussion you had with Mr. Andrews relating to authorization.

If I interpreted correctly the response you gave, the entire \$794 million we are speaking of here is considered to be completely authorized, so the only remaining thing is the approval of the funding in accordance with prior authorization, is that correct?

General STARBIRD. No, sir. I did not make it completely clear.

The \$794 million for fiscal year 1970 is new authorization to the degree the committees do authorize—I will come back to that in a moment—as well as new appropriation.

The committees authorized, for example, in PEMA some of the items, but not all of the items. They appropriated, of course, for the full amount.

In MCA they authorized the full amount as well as appropriated.

The \$794 million for fiscal year 1970 includes some required MCA. Actually, in 1970 the total requirement in obligational authority is \$892 million, but we are carrying over some earlier authorization appropriation to apply against this.

I think what Mr. Andrews was referring to was the portion authorized and appropriated for 1969 and 1968, rather than the additional we are asking for in 1970.

Mr. DAVIS. So, within this total there are requests pending before the Armed Services Committee under military procurement, and also under military construction, that will be necessary before this money could be properly approved by this committee, is that correct?

General STARBIRD. And for R.D.T. & E., all three separate categories.

Mr. DAVIS. The R.D.T. & E. would come in under the regular military procurement authorization bill, would it not?

General STARBIRD. Yes, sir; that is the same as the PEMA portion, separate from the MCA authorization.

Mr. DAVIS. Do we have anywhere in our records a breakdown of what part of this is now authorized and what part of it is now pending by way of authorization before the Armed Services Committee?

General STARBIRD. I am not sure whether you have a full and detailed account. Should you like, sir, we can work with the committee staff and develop and insert something in the record which will cover it.

Mr. DAVIS. I think we ought to have that, because we do not know to what extent we need to wait on the legislative committees before proceeding with any of these appropriation requests.

It would be good if you developed that and inserted it in the record. We would then know a little better where we are.

General STARBIRD. We will develop that and check it with the staff.

(The information follows:)

SAFEGUARD FISCAL YEAR 1970 AUTHORIZATION AND APPROPRIATION REQUESTS

[In millions of dollars]

Appropriation	Authorization request ¹	Appropriation request	
		Total obligation authority requested	New obligation authority requested
RDTE.....	400.9	400.9	400.9
PEMA.....	² 342.2	³ 360.5	³ 345.5
MCA.....	³ 12.7	⁶ 97.1	⁶ 14.1
OMA.....	(⁴)	23.2	23.2
MPA.....	(⁴)	⁷ 9.8	⁷ 9.8
Total.....	755.8	891.5	793.5

¹ These are the amounts requiring new authorization for the Safeguard program and which are included in the pending military construction and procurement authorization bills.

² This excludes \$3,300,000 for communications equipment shown on line 232 of the April 11, 1969, exhibit P-1 which is not subject to authorization, and \$15,000,000 in funds carried forward for which prior year authorization exists.

³ This includes funds for construction of facilities in support of the Safeguard R. & D. program at Kwajalein Missile Range. It excludes \$1,400,000 of planning and design funds being requested in the military construction appropriation bill to support the R. & D. construction effort at Kwajalein.

⁴ OMA and MPA are not subject to authorization.

⁵ The total PEMA obligation authority requested in the defense appropriation bill to support Safeguard in fiscal year 1970 is \$360,500,000 as shown on lines 63-68, 90, 94, and 232 of the revised exhibit P-1, dated April 11, 1969, supporting data for fiscal year 1970 budget request. On decision to change from the Sentinel to the Safeguard deployment, \$15,000,000 of fiscal year 1969 PEMA funds appropriated by the 90th Congress for Sentinel was placed in deferred status by the Office of the Secretary of Defense pending congressional decision on the fiscal year 1970 Safeguard program. Fiscal year 1969 PEMA total obligation authority for Safeguard was reduced to \$330,600,000 as shown in lines 63-68, and 90 of the exhibit P-1. If approved, the \$15,000,000 in deferred funds will be applied to reduce the fiscal year 1970 TOA of \$360,500,000 to \$345,500,000 NOA.

⁶ The total MCA obligation authority requested for Safeguard in the fiscal year 1970 military construction appropriation bill is \$97,100,000. This total is composed of \$60,500,000 for tactical construction, \$14,100,000 for planning and design, \$12,700,000 for construction at Kwajalein Missile Range in support of the Safeguard R. & D. program, and \$9,800,000 for design and construction of access roads for the Montana and North Dakota sites. On decision to change from the Sentinel to the Safeguard deployment, \$83,000,000 of fiscal year 1969 MCA funds appropriated for Sentinel by the 90th Congress were placed in deferred status by the Office of the Secretary of Defense pending congressional decision on the fiscal year 1970 Safeguard program. If approved, the \$83,000,000 in deferred funds will be applied to reduce the fiscal year 1970 TOA of \$97,100,000 to \$14,100,000 NOA. The \$14,100,000 NOA request is composed of \$12,700,000 for construction in support of R. & D. and \$1,400,000 for planning and design at Kwajalein.

⁷ Funds to provide for pay and allowances of military personnel assigned to the Safeguard program are included in the Army's total MPA appropriation request. Separate amounts for Safeguard are not requested. The amounts shown here are those included in the Army's MPA appropriation request and are based on average military strength approved by the Office of the Secretary of Defense for Safeguard multiplied by an Office of the Secretary of Defense approved average rate per man-year.

Mr. DAVIS. That is all, Mr. Chairman. Thank you.

Mr. WHITTEN. General, thank you for making a very fine presentation. We realize this is an area which is hard to deal with.

The committee stands adjourned until 10 o'clock tomorrow.

TUESDAY, JUNE 17, 1969.

BUDGET AND FINANCIAL MANAGEMENT**WITNESSES**

**HON. ROBERT C. MOOT, ASSISTANT SECRETARY OF DEFENSE
(COMPTROLLER)**
**DON R. BRAZIER, DEPUTY ASSISTANT SECRETARY OF DEFENSE
(COMPTROLLER)**
**MAJ. GEN. WENDELL CARTER, U.S. AIR FORCE, DEPUTY ASSISTANT
SECRETARY OF DEFENSE (INFORMATION)**
**MAURICE H. LANMAN, JR., ASSISTANT GENERAL COUNSEL (FISCAL
MATTERS)**
**CLIFFORD J. MILLER, DEPUTY COMPTROLLER FOR PLANS AND
SYSTEMS**

Mr. MAHON. The subcommittee will be in order.

Today we have with us Mr. Moot, the Assistant Secretary of Defense, Comptroller, for a discussion of the fiscal year 1970 Department of Defense budget estimates, and in conjunction therewith the budget adjustments for fiscal year 1969. Of course, all through these hearings we will be discussing the revised fiscal year 1970 budget figures.

Besides discussing the budget estimate for 1970 of some \$77.5 billion, we will also get into some special areas concerning overall funding practices of the Department of Defense, such as the full funding concept.

BIOGRAPHY OF COMPTROLLER

Mr. Moot, we are pleased to have you before us along with others from the Department of Defense. I believe this is your first appearance before this committee in support of a full fiscal year program. You were here, of course, for the supplemental presentation for fiscal year 1969, but since this is your first appearance in support of an annual request, we will at this point in the record insert your biographical sketch.

(The sketch follows:)

ROBERT C. MOOT ASSISTANT SECRETARY OF DEFENSE (COMPTROLLER)

Robert C. Moot entered Federal civil service in 1946, rising to the position of Administrator of the Small Business Administration and most recently to the post of Assistant Secretary of Defense (Comptroller).

Mr. Moot was the first civilian Comptroller of the Navy's Bureau of Supplies and Accounts, and, in 1962, he became the first Comptroller of the newly formed Defense Supply Agency. He had actively participated in the initial planning for this Agency, which is responsible for the procurement and provision of supplies and services for the entire Defense Department.

In June 1965, Mr. Moot became Deputy Assistant Secretary of Defense for Logistics Services, and in December 1966, he was appointed Deputy Administrator of the Small Business Administration. In August 1967, he became chief officer of

this Agency, which administers the Government's multibillion dollar loan and procurement assistance programs for small business.

On August 1, 1968, he became the fifth Assistant Secretary of Defense (Comptroller).

Mr. Moot served in the Army during World War II, rising to the rank of Chief Warrant Officer. He has been a recipient of many awards, including the Department of Defense Distinguished Civilian Service Award with Bronze Palm, the Department of Defense Meritorious Civilian Service Award, the Defense Supply Agency Exceptional Civilian Service Award, the DSA Meritorious Civilian Service Award, and the Small Business Administration Distinguished Civilian Service Award.

Mr. Moot was born in Orange, N.J., on June 1, 1911, and was educated in the New Jersey school system. He and his wife, the former Helen Helms, and their three children, Karen, Robert, Jr., and Gregory, reside in Annandale, Va.

GENERAL STATEMENT

Mr. MAHON. I note that you have a rather comprehensive statement, so will you please proceed and we will hear it without interruption after which we will go into the general questioning.

Mr. MOOT. Mr. Chairman and members of [the committee, it is a pleasure to appear before this committee to discuss the 1970 budget estimates of the Department of Defense. Once again, Mr. Chairman, I must ask you to bear with me as I offer a long and involved statement. This is necessary because of the many complex developments which affect our estimates. I will set them forth as concisely as I can.

I propose to begin by summarizing the amendments to the January 1969 estimates, submitted by this administration in March and April 1969.

Next, I will discuss our estimates for fiscal year 1970 as they stand today, covering decreases in Southeast Asia costs; increases in other programs; financing and budget authority; and pay raises and proposed legislation.

There has been a great deal of attention, to put it mildly, directed to the size and controllability of the Defense budget, and its proper place in a system of national priorities. In the next part of my statement, I propose to present certain data which I believe are relevant to these matters.

The last part of my statement deals with specific aspects of management within the Department in which this committee has expressed particular interest. This includes the problem of cost overruns; full funding; recent developments in our budget and accounting systems for operating costs; and management of ADP systems.

In addition, Mr. Chairman, I am furnishing an appendix for the record. This includes tables presenting details on our program and its financing, obligations, balances, and outlays, with a narrative explanation. It is similar in form to material furnished for the record in prior years.

With your permission, then, Mr. Chairman, I will take up the points in my prepared statement, beginning with the fiscal year 1969 and fiscal year 1970 budget amendments.

EFFECT OF BUDGET AMENDMENTS

Upon assuming office, this administration undertook a thorough review of the budget estimates submitted to the Congress in January 1969. This review led to the submission of budget amendments, submitted on March 26, 1969 for the fiscal year 1969 supplemental requests and on April 15, 1969 for the regular fiscal year 1970 estimates.

The effects of these amendments are summarized in table 1. Total obligational authority (or TOA) was reduced by \$628 million for 1969 and \$2,644 million for 1970. 1969 budget authority was reduced by \$150 million; the balance of the 1969 program (or TOA) reduction was carried forward to reduce 1970 appropriation requests, since there were no outstanding 1969 appropriation requests to which to apply these cuts. Budget authority for 1970 was thus reduced by \$3,107 million, reflecting the 1970 program reductions and the additional amounts carried over from 1969.

Outlay (or expenditure) estimates for 1969 were not changed as a result of this review. These program reductions were made quite late in the year, and over 95 percent of the reductions involve procurement and construction appropriations, for which the first-year expenditures are very small. Moreover, our experience to date suggests that \$78.4 billion is still a reasonable estimate of fiscal year 1969 expenditures. For fiscal year 1970, it is estimated that expenditures will be \$1,113 million below the January estimate, producing a revised total of \$77,887 million.

Table 2 indicates the areas in which these program (or TOA) adjustments were made.

For Southeast Asia support, the bulk of the reductions involve munitions and related items. For ground munitions and ship munitions, lower consumption rates are now estimated than in January 1969. The funds now requested will provide for production slightly above this consumption rate, so that the inventory levels previously planned for the end of fiscal year 1970 can be achieved.

Consumption forecasts drop slightly for air munitions, but the decrease in the budget estimates results primarily from the forecast production rate. It is planned to convert to the lowest sustaining rate at June 30, 1970 (the midpoint of the fiscal year 1970 funding year). Production can be increased quickly from this level if necessary.

Decreases for aircraft and other equipment procurement result largely from taking account of the most recent experience on attrition.

With respect to military personnel, these estimates assume no reductions in deployed strength. Of the reductions shown, over half result from lower rates for servicemen's group life insurance (SGLI). The balance of the reduction includes a slight decline in Conus support strength, operational rations, and death gratuities.

For operation and maintenance, the changes reflect increases for B-52 sorties (\$25.1 million in 1969 and \$27.4 million in 1970), with decreases for transportation (related to ammunition consumption), civilian support personnel, herbicides, self-help shelters, and smaller items.

No funds for phase II modernization of the Armed Forces of the Republic of Vietnam were reflected in the estimates submitted in January 1969. The present estimates reflect \$35.8 million to initiate phase II in fiscal year 1969, increasing to \$120.3 million in fiscal year 1970.

After consideration of our research and development needs, it was decided to request an additional \$50 million for the emergency fund, Defense. This would provide greater flexibility in the conduct of research efforts, by making it possible to exploit new developments without disrupting ongoing programs. It is estimated that \$40 million of this additional amount will be applied to Southeast Asia needs, and this amount is reflected here.

Strategic systems, as shown in the table, account for well over half of the reductions for the 2 years. These reductions relate primarily to four major systems, as shown. The dollar amounts shown here cover all appropriations.

The reductions for shipbuilding are closely related to the problem of cost overruns, which I propose to cover later. For the present, I would like only to point out that the shipbuilding program was reduced by \$108.9 million for 1969 and \$66.9 million for 1970, below the estimates submitted in January.

The line for "all other" changes in table 2 reflects the net of a few increases and a number of decreases. This involved taking account of the most recent experience on costs and activity rates, as well as eliminating items which, upon reconsideration, appeared to be marginal.

To summarize, the estimates submitted in January 1969 were reduced by \$627.9 million for 1969 and \$2,643,600,000 for 1970. Strategic systems and munitions for Southeast Asia accounted for over 90 percent of the 2-year reduction, but a great many other adjustments were made—including increases on a very selective basis.

FISCAL YEAR 1970 BUDGET REQUESTS

Leaving the budget amendments, I would like to address next the budget estimates as they stand today. Since congressional action is still pending on our fiscal year 1969 supplemental appropriation requests, I will address here the fiscal year 1969 and fiscal year 1970 estimates as submitted by this administration in March and April of this year.

Our request for total obligational authority declines from \$80,674 million for fiscal year 1969 to \$80,358 million for fiscal year 1970, a drop of \$316 million. However, as shown in table 3, this is the net of two much larger changes. Our estimates for Southeast Asia support costs decline by \$5,385 million. We propose increases in other programs amounting to \$5 billion and \$69 million. The \$316 million overall reduction is the net of these two changes.

I believe that it is most meaningful to consider these two parts of our program separately—that is, decreases in Southeast Asia costs and increases for other programs. I propose to cover these in the next two sections of this statement.

FISCAL YEAR 1970 DECREASES FOR SOUTHEAST ASIA SUPPORT

As indicated in table 3, Southeast Asia support costs decline by \$5,385 million from 1969 to 1970. I will address briefly the nature of these reductions for each group of appropriations.

Military personnel costs for Southeast Asia support decline by \$38 million from 1969 to 1970 in these estimates, as shown in table 3. Half

of this decrease (\$19 million) involves amounts paid for servicemen's group life insurance (SGLI) and the remainder is the result of small changes in the number of support personnel and costing factors.

Operation and maintenance costs for Southeast Asia support are estimated to decline by \$1,018 million. This is the net of \$96 million in increases for RVNAF modernization and \$1,114 million in decreases.

The largest reduction involves \$587 million related to lower activity rates assumed in the development of these budget estimates. It became apparent last fall that the tempo of operations in Southeast Asia was slackening somewhat. A number of indicators suggested this, including consumption rates for ground munitions, obligation rates for supplies (Army), flying hours (Navy), and MSTTS shipping trends, in addition to operational data.

In addition, there are possibilities for better utilization of material in the theater, reducing the need for new procurement. A reduction of \$241 million is projected for Army supplies and materials, directed at better utilization and recognizing a falloff in the requirements for initial issue.

Other operation and maintenance cost reductions include \$105 million for transportation, related to the falloff in munitions; \$76 million for B-52 sorties; a \$33 million reduction for civilian personnel, part of a outback directed by the Bureau of the Budget just prior to the recent budget amendments; \$32 million for certain nonrecurring items in Korea; and \$40 million for a variety of increases and decreases.

The largest decreases in Southeast Asia support costs from 1969 to 1970 are in the procurement appropriations, where we project a reduction of \$3,950 million. This includes a reduction of \$2,262 million for ground and air munitions, missiles, and related items. The fiscal year 1970 estimates were developed on the basis of the factors that I mentioned earlier: a lower consumption rate for ground munitions, and conversion to a minimum sustaining production rate for air munitions at June 30, 1970—the midpoint of the production year financed with fiscal year 1970 funds.

Aside from munitions, the estimates for Southeast Asia support costs for procurement appropriations decline by \$1,688 million from 1969 to 1970. This reflects lower estimates of attrition and consumption, as well as a reduction in the needs for initial outfitting and equipping of the forces deployed. The reductions include \$1,051 million for aircraft, spares, and related equipment; \$458 million for Army equipment—communications and electronics, weapons and other combat vehicles, and other equipment; \$173 million for Navy civil engineer items, ships support equipment, and communications/electronics items; and a net of \$6 million for other items.

The figures just presented include a \$30 million increase for RVNAF modernization—\$19 million for the Army and a net of \$11 million in the other appropriations.

Research, development, test, and evaluation costs for Southeast Asia support are forecast to decline by \$133 million. This reflects reductions of \$182.3 million for the three service appropriations, partially offset by increases of \$9.7 million for Defense agencies and \$40 million for the emergency fund. The Army estimate declines by

\$27.9 million, of which \$21.5 million is for the advanced aerial fire support system (AAFSS, CHEYENNE). The Navy decrease of \$75.8 million involves \$15.9 million for shipboard electronic warfare; \$15.9 million for the E-2A; \$12.8 million for advanced conventional ordnance and fleet support; \$8.5 million for Standard ARM; \$7.5 million for conventional ordnance equipment; \$7.1 million for the Laser target designator; \$6 million for the EA-6B aircraft; and a net decrease of \$2.1 million for other systems. Air Force estimates decline by \$78.7 million; including a reduction of \$28 million for the traffic control and landing system (TRACALS); \$10.2 million for penetration aids for manned aircraft; \$6.4 million for life support systems; \$6.4 million for intelligence and reconnaissance equipment; and a net reduction of \$27.7 million for many smaller adjustments.

Increases are requested for defense agencies for project AGILE (\$4 million) and advanced sensors (\$6 million) with a net reduction of \$0.3 million for other programs. The net effect is a \$9.7 million increase for this account.

For the emergency fund in total, an appropriation of \$100 million is requested for fiscal year 1970, a \$50 million increase from the amount appropriated for fiscal year 1969. The amount estimated for Southeast Asia increases from \$40 million to \$80 million, to facilitate quick reaction to new needs and the exploitation of technological breakthroughs.

The military construction program drops to \$25 million in fiscal year 1970, a reduction of \$247 million. Construction planned is almost completely funded through the fiscal year 1969 program.

RVNAF MODERNIZATION

The current estimates include \$551.9 million for RVNAF modernization in fiscal year 1970, an increase of \$125.8 million from fiscal year 1969. Of the increase, \$41.3 million is for phase I and \$84.5 million for phase II. These amounts are included in the figures presented above for operation and maintenance and procurement. Table 4 summarizes the estimates for RVNAF modernization.

FISCAL YEAR 1970 PROGRAM INCREASES

Table 3 indicates an increase of \$5,069 million from fiscal year 1969 to the fiscal year 1970 requests for non-Southeast Asia programs. There are large changes for several major strategic systems, which changes generally involve several appropriations. I believe it would be clearer if I discussed strategic systems separately, and then addressed the other changes for each category of appropriations.

DECREASE FOR STRATEGIC FORCES

Table 5 summarizes the changes from fiscal year 1969 to fiscal year 1970 for our major strategic systems. It should be noted that the estimates contemplate a reduction of \$566 million for procurement, construction, operations, and operational systems development costs related to strategic systems. Research effort on programs not yet in the operational systems development stage increase by \$344 million under these requests, producing a net reduction of \$222 million for strategic systems.

Military personnel appropriation requests increase by \$463 million from 1969 to 1970, excluding Southeast Asia, as shown in table 3. This includes a \$285 million increase for payments to retired personnel; the average number of retired members is expected to grow from 695,000 to 760,000, and annualization of the February 1969 cost-of-living increase will also increase costs.

Military personnel costs for the reserve components are forecast to increase by \$102 million, largely reflecting costs of Air Force Guard and Reserve personnel released from active duty; increased trained strength and more intensive civil disturbance training for the Army Guard and Reserve; and longer tour lengths as prescribed in Public Law 90-168 for Navy and Marine Corps reserves.

For active duty military personnel, average strength is projected to decline from 3,471,495 in fiscal year 1969 to 3,462,366 in fiscal year 1970, a drop of about 9,000. There are increases for the Army, Navy, and Marine Corps of 15,000 and a decrease for the Air Force of 24,000.

Aside from Southeast Asia, appropriation requests increase by \$76 million for the active forces—a decrease of \$61 million for the Air Force and increases of \$137 million for the other services. These increases result from the slightly higher average strength, changes from the number of personnel in the top-six enlisted grades, and changes in the variable reenlistment bonus and proficiency pay.

For the Air Force, the reduction largely reflects a cutback in personnel assigned to base operations in support of strategic forces.

Operation and maintenance appropriation requests, excluding Southeast Asia, increase by \$277 million from fiscal year 1969 to fiscal year 1970, as shown in table 3. The largest items here are \$77 million for the Army and Air Guard and \$71 million for the Reserves, a total of \$148 million for these components related to the increases discussed in connection with military personnel.

The remaining increase of \$129 million is the net of a \$128 million reduction in operating costs for strategic forces and \$257 million in net increases. The latter amount is the net of a great number of relatively small increases and decreases throughout the Department, including annualization of wage board pay increases, higher support costs for more complex new systems, and increases for overseas dependent education, partly offset by decreases in civilian employment and other factors.

Procurement estimates increase by \$3 billion 130 million from fiscal year 1969 to fiscal year 1970, aside from Southeast Asia. Procurement costs for strategic forces decrease by \$241 million, so the net increase for other systems is \$3 billion 371 million. The major items here are as follows:

[Dollars in millions]

Shipbuilding:

For Hi speed SSN's; the nuclear carrier (CVAN); fast-deployment logistics ships (FDL); new-type frigates and destroyers (DX and DXGN); and amounts for claims and cost growth..... \$1, 546

Aircraft:

Including, for the Navy, the F-14A, the EA-6B and the KA-6D; for the Air Force, the A-7D, C-5A and F-111D; offset in part by reductions for the A-7E and F-4E..... 1, 100

Tactical missiles for the Navy and Air Force..... 125

Ground equipment:

For the Army and Marine Corps, including tracked combat vehicles, weapons, and production base support..... 277

Communication/electronics and other support equipment:
 Including ship and aviation support equipment for the Navy and
 Air Force..... 323

For a total of..... 3, 371

It will be noted that the largest increase is for shipbuilding. I believe it is important to point out that this particular program has been reduced to abnormally low levels in recent years, as part of the effort to reduce non-Southeast Asia costs. The fiscal year 1970 program proposed here is very large when compared to the fiscal year 1969 or fiscal year 1968 programs, but is reasonably in line with earlier programs.

Research, development, test and evaluation estimates, exclusive of Southeast Asia, increase by \$712 million from fiscal year 1969 to fiscal year 1970. This includes an increase of \$235 million for strategic forces already discussed, and detailed in table 5. The remaining increase for R.D. T. & E.—that is, excluding Southeast Asia and excluding strategic forces—is \$477 million. This includes the F-15A for the Air Force, \$129.7 million, and three Navy systems: the S-3A, \$102.7 million; the F-14A, \$45 million; and the E-2C, \$40.2 million. Three Army systems increase by an aggregate of \$44.6 million—SAM-D, Mallard and Lance. Exploratory development for the three services increase by \$60 million, and research by \$14.7 million. Excluding the portion estimated for Southeast Asia, the emergency fund, defense, increases by \$11 million. All other systems increase by a net of \$29 million, reflecting many increases and decreases.

Military construction estimates increase by \$418 million from fiscal year 1969 to fiscal year 1970, exclusive of Southeast Asia. This is the net of reductions of \$61 million for strategic forces and \$479 million in increases. These increases are for facilities of many types to meet part of the backlog which has accumulated for operational, training and R. & D. facilities; troop housing; and facilities for control of air and water pollution.

Other programs shown in table 3 increase by a net of \$70 million. The largest item here is family housing, which increases by \$102 million.

FISCAL YEAR 1970 BUDGET AUTHORITY AND FINANCING

To this point, I have discussed our program in terms of total obligational authority, or TOA. I would now turn to budget authority, or NOA. This is reflected toward the bottom of table 1.

It will be noted that budget authority increases from \$76,848 million in fiscal year 1969 to \$77,539 million in fiscal year 1970, an increase of \$691 million. TOA, however, declines by \$316 million. The main reason for this difference is the falloff in financing adjustments, also shown in table 1—from \$3,525 million in 1969 to \$2,433 million in 1970.

These financing adjustments represent amounts that we can derive from available prior balances or from other sources, thereby reducing the amount of appropriations required to support the program. These adjustments result primarily from cutback or cancellation of prior-year programs; sale of items from inventory, not requiring replacement; and transfer of cash balances from stock funds.

As shown in table 1, financing adjustments decline by \$1,092 million from 1969 to 1970. Within this amount, stock fund cash transfers decline by \$1,130 million; all other financing adjustments increase by \$38 million. It is therefore important to discuss the reason for the decline in stock fund cash transfers.

In 1969 we are transferring \$1,530 million from the stock funds to procurement appropriations, thereby reducing NOA requirements by that amount. In fiscal year 1970, these transfers drop to \$400 million, or \$1,130 million less than fiscal year 1969. In fiscal year 1969, we brought large amounts of material, including aircraft spares, under the stock fund. When this material was financed from appropriations, in fiscal year 1968 and prior years, we had required NOA to finance annual consumption as well as the pipeline of stock on hand and on order. When we brought this material under the stock fund, we required NOA for annual consumption only—in the O. & M. appropriations. The stock funds now finance the pipeline, and they do not require NOA. Such a reduction in NOA is a one-time affair; it cannot be expected to recur. We are, in fact, projecting a further stock fund inventory drawdown in fiscal year 1970, and this produces the \$400 million transfer proposed for fiscal year 1970.

Aside from this one-time reduction relating to the stock funds, we are projecting financing adjustments at a slightly higher level in fiscal year 1970 than in fiscal year 1969.

Table 1 also shows budget concepts adjustments. These reflect trust fund transactions and certain receipts from the public. They are reflected in our budget totals under the budget concepts instituted in the fall of 1967, but they have no effect upon the amount of appropriations requested.

PAY RAISES AND PROPOSED LEGISLATION

Because of the interest in a Government-wide ceiling on outlays, Mr. Chairman, I believe I should discuss briefly the relationship of our current estimate of \$77.9 billion in fiscal year 1970 outlays to the Government-wide estimate of \$192.9 billion, and indicate what is included.

First, as to pay rates: for military personnel and classified civilian employees, our fiscal year 1969 and fiscal year 1970 estimates reflect the pay rates that went into effect on July 1, 1968. Supplemental appropriation requests for fiscal year 1969, to meet the costs of this pay raise, are now before the Congress.

The Department of Defense estimates do not reflect the cost of the military and classified civilian pay increases to go into effect on July 1, 1969. Wage board pay rates are also treated in this budget as they have been in the past. The fiscal year 1969 estimates reflect anticipated increases through June 30, 1969, with needed additional amounts covered in the fiscal year 1969 supplemental now pending. The fiscal year 1970 estimates are based on the rates expected to be in effect on June 30, 1969.

These fiscal year 1970 pay increases—the July 1, 1969 raise for military personnel and classified civilians, and the estimated fiscal year 1970 wage board increases—are reflected in the fiscal year 1970 budget estimates as a one-line contingency estimate, Government-wide. An estimate of \$2.8 billion for all agencies was submitted in

January 1969. This estimate was not revised in the budget amendments.

The Bureau of the Budget has informed us that the Defense share of this contingency estimate is \$2.1 billion. We estimate the cost of the pay raises for fiscal year 1970 at about \$2.4 billion. Other things being equal, it will be necessary for us to absorb nearly \$300 million of these pay increases within amounts appropriated to us for fiscal year 1970, and supplemental appropriations of about \$2.1 billion will be requested.

In addition to pay legislation, parts of our requests, as you know, require legislative authorization. This includes Reserve component strengths and certain procurement and R.D.T. & E. items under section 412(b); military construction and family housing; and military assistance. The legislative proposals have been submitted, and our budget requests are completely consistent with these proposals.

Aside from this authorization legislation, the fiscal year 1969 and fiscal year 1970 budget estimates for the Department of Defense include nothing under proposed legislation. There are, however, a number of proposals in the fiscal year 1970 legislative program which, if enacted, will have a budgetary impact for fiscal year 1970. The amount involved is approximately \$87 million for the Department of Defense: \$53 million related to a proposed increase in maximum per diem rates for military personnel; \$17 million related to changes in family separation allowances; and \$17 million for a number of smaller proposals. These amounts are included in another Government-wide contingency estimate, and are not reflected in the Defense budget totals.

In addition to these legislative items applicable to the Department of Defense, there are some Government-wide legislative proposals sponsored by the President which would have an impact upon our budget if enacted. These items are very small for the Department of Defense. The largest involves increasing the maximum per diem payments to civilian employees. These amounts are also covered by the Government-wide contingency estimate just mentioned.

To the extent that we request supplemental appropriations for fiscal year 1970, either for the pay raises or the legislative proposals just mentioned, this will not involve an increase in the budget total, Governmentwide. It will merely involve moving amounts from the overall contingency estimates to the budget requests of specific agencies.

In this general connection, Mr. Chairman, I should also mention retired pay for military personnel, and claims. Requirements for either of these may increase due to factors beyond our control. Retired pay may increase because the number of personnel retiring, or longevity, exceeds our estimates, or because of increases in the cost of living. Claims, of course, are inherently unpredictable.

The foregoing, Mr. Chairman, is a complete listing of all the factors known to me today which might cause an increase in our fiscal year 1970 budgetary requirements. I cannot, of course, predict the course of operations in Southeast Asia, nor military emergencies which may arise elsewhere. However, insofar as our present knowledge is concerned, and as relates to matters within the control of the executive branch, the list I have given you is complete.

DEFENSE BUDGET TRENDS AND OUTLOOK

My next topic, Mr. Chairman, requires very little in the way of introductory remarks before this committee. I am sure that you are fully aware of the keen interest in the Defense budget in many quarters: its size, its controllability, and its significance in terms of priorities. I believe that my statement would not be complete without addressing these matters.

SIZE OF THE DEFENSE BUDGET AND 1964-70 TRENDS

Some relationships which may be helpful in appraising the size of the Defense budget are presented in table 6. This shows Defense outlays in absolute terms, and as a percentage of GNP.

As a percentage of GNP, military outlays reached their post-World War II low in 1948, at 4.5 percent. The high, reached during Korea, was 13.4 percent of GNP in 1953.

The Vietnam high was 9.5 percent, reached in 1968. Military outlays for fiscal year 1970, as revised downward by President Nixon and without the July 1, 1969, pay raise, are projected at 8.1 percent of the GNP—below the pre-Vietnam year of 1964, well below the levels which prevailed through the 1950's and early 1960's and far below the levels which prevailed during Korea. The fiscal year 1970 level is well below most of the years during the last two decades.

A similar relationship appears in comparing the military budget with total Federal budget outlays. This percentage dropped steadily until 1965; the trend was reversed with Vietnam, and military outlays climbed to 42.5 percent of the Federal total in 1968. They are declining again, and for 1970 are forecast at 39.8 percent. This is well below the pre-Vietnam year of 1964, and the earlier years. Not since the late 1940's has the military budget consumed a significantly lower percentage of the Federal budget total than is projected for fiscal year 1970.

It is worthwhile to look at the absolute figures for a moment. From the pre-Vietnam year of 1964 to 1970, military outlays rise by \$27.1 billion; other outlays increase by \$47.2 billion. From 1968 to 1970, military outlays decrease slightly; other outlays increase by \$12.4 billion.

The 1970 figures including the July 1, 1969 pay raise are also shown in table 6. Their inclusion would not significantly alter what I have said.

In summary, these figures do not indicate that military outlays are racing ahead unchecked, or consuming unprecedented portions of GNP or the Federal budget.

The figures used to this point have included special wartime costs, and have not been adjusted for inflation. Table 7 shows a breakout of costs for support of operations in Southeast Asia. Note that outlays for Southeast Asia are forecast at \$24.9 billion for 1970. Outlays for military retirement, which does not contribute to current military readiness, are forecast at \$2.7 billion for 1970. Remaining outlays are forecast at \$50.3 billion, an increase of \$700 million in current dollars from the 1964 level.

Allowing for pay and price increases since 1964, our nonwar and nonretirement budget has declined sharply—from \$49.6 billion in 1964 to \$41.8 billion in 1970, a drop of \$7.8 billion in constant dollars. This is a drop of about \$9.4 billion in fiscal year 1970 dollars.

It will be noted that our nonwar budget consumes a sharply declining percentage of GNP and of the total budget. These figures include the growing cost for retired pay. In these terms, the Defense budget is 27.1 percent of the Federal budget total—lower than the lowest year since World War II, the nonwar year of 1948. The nonwar budget is 5.5 percent of GNP, compared with 4.5 percent for 1948.

The attachments to table 7 present details on the composition of the pay and price increase. These increases include three elements: pay act increases, as provided in law; a special computation for military retired pay; and, for the remainder, use of the noncompensation component of the Federal purchases deflator developed by the Department of Commerce. It is important to note that the July 1, 1969 pay raise is not reflected here.

The pay increases during this period were unusually large. They reflect the adoption of the comparability principle for Federal salaries. In addition, of course, price increases during the period have had an impact.

DEFENSE BUDGET AND CONGRESSIONAL CONTROL

I would next like to highlight a number of features having an important bearing upon the controllability of the Defense budget. I will address this question: How does the system for Defense budgeting measure up as a vehicle for registering and implementing congressional determinations on priorities? This is a central question in the current debate, and I would like to offer a number of points which I believe are pertinent to that question.

First, I believe it is significant that we lack automatic financial authority. For many Federal programs, outlays are determined by the operation of formulas and other statutory provisions, and are not controlled through the appropriation process. To quote from the President's budget for fiscal year 1970 (p. 15), " * * * in some cases, national priorities are arbitrarily distorted by the fact that the outlays for some Federal programs are sheltered in basic law from meaningful annual control * * * " The budget for 1970 (p. 20) showed that only \$20.6 billion of civilian program outlays were relatively controllable—about 17 percent of the total. The remainder involved statutory formulas, permanent authorizations, et cetera.

In contrast, the Department of Defense has relatively few programs that are uncontrollable in this sense. Payments to retired personnel and claims (estimated at \$2,735 million and \$41 million, respectively, for fiscal year 1970) are the only such programs we have. Even these, it should be emphasized, are subject to specific, annual appropriations—they are not covered by permanent or indefinite authority or other such arrangements.

In short, Congress can change the Defense budget totals directly and expeditiously through the appropriation process. For most of the remainder of the budget, this is not the case. In this sense, I believe, the Defense budget system is a more effective instrument for the prompt registration of congressional policy choices.

A second factor of considerable importance in appraising the responsiveness of the budget system to a change in priorities is the matter of carryover balances. Where there are large carryover balances, budget outlays obviously tend to be less responsive to current appropriation action than would otherwise be the case. Table 8 presents the unexpended balances for military programs and other programs as forecast in the 1970 President's budget for June 30, 1969.

It will be noted that Defense has 10 percent of the unobligated balances for the Federal budget, and 21 percent of the unexpended balances. Unexpended balances are equal to about 7.4 months of outlays for Defense, versus 18.3 months for the rest of the Government.

A third and related matter of great importance to an inquiry on priorities concerns the management of carryover balances. The questions involved here are these: once funds are provided by the Congress, are they more or less automatically and routinely applied to the purpose for which appropriated? Or, conversely, are there effective procedures for applying these funds to higher priority programs as circumstances change?

In the Department of Defense, there are well established and, we believe, effective procedures for reassessing priorities and reapplying resources that the Congress has provided in the past. These changes are effected through financing adjustments, reflected in our annual budget submission, and through reprogramming.

Financing adjustments involve the use of prior-year appropriation balances, or the sale of inventory without replacement, to meet a part of the cost of the Defense program for a particular year. Financing adjustments of \$3.5 billion are reflected for fiscal year 1969 and \$2.4 billion more are proposed in our amended budget for fiscal year 1970. These amounts are deducted from the program levels proposed for a year to determine the amount of appropriations requested.

These financing adjustments arise largely from (a) cutback or termination of systems financed in earlier years, and (b) sale of inventory without replacement. In the latter connection, our experience with stock funds is worth noting. Since the early 1950's, we have drawn down stock fund inventories to a considerable extent, making it possible for the Congress to transfer over \$10 billion in cash to appropriations, thereby reducing new obligational authority required by that amount.

As to reprogramming understandings, it is important to emphasize that all legal restrictions as to the availability of appropriations continue to apply. This system gives us no relief from appropriation restrictions or other statutory provisions.

This combination of financing adjustments and reprogramming understandings is an important matter in the present discussions of budget priorities. These arrangements facilitate a constant reassessment of resources and priorities, and they provide for congressional participation and control on an up-to-the-minute basis. These arrangements have been worked out over the years for the Department of Defense which, as indicated earlier, has about 10 percent of the Government's unobligated Treasury balances. I am not, of course, in a position to comment upon the extent to which these arrangements do or might apply to other programs.

PROGRAM COST GROWTH AND FINANCING SHORTAGES

I would like to turn next to the matter of program cost growth and related financing shortages, items which I am sure are of particular interest to this committee. Our most recent analysis indicates that this is a \$1.6 billion problem.

We have reestimated the costs to complete certain systems included in the Defense programs through fiscal year 1970. This analysis indicates that the remaining costs to complete these systems exceed by \$1.6 billion the financing available in the budget estimates as submitted in January 1969. These estimates are not restricted to bills in hand. They reflect our best estimate of the ultimate cost to complete, taking into account our most recent cost and claims experiences.

These figures do not reflect the total cost increases that we have encountered or expect to encounter. They reflect all the major increases that we have been able to identify, but exclude smaller increases. Many cost increases experienced up to January 1969 have been covered by reprogramming, and are thus not reflected in these figures. It should also be mentioned that the fiscal year 1970 estimates submitted in January 1969 included specific amounts to cover cost increases for three systems: \$225 million for the C-5A; \$71.4 million for the F-111A, D, and E; and \$74.7 million for the FB-111. The FB-111 has been eliminated from the fiscal year 1970 program, but the amounts for the other aircraft are continued in the revised budget requests. Because specific provision is made for these items in the fiscal year 1970 estimates as submitted, they are not a part of the \$1.6 billion identified shortage.

In summary, the \$1.6 billion represents the major identified shortages that had not been covered by reprogrammings submitted as of January 1969, or in specific appropriation requests then submitted. We propose to cover this amount as follows:

To be covered in fiscal year 1969 or fiscal year 1970:	<i>Millions</i>
Shipbuilding:	
Budgeted as a line item in revised fiscal year 1970 submission...	\$167. 0
Covered in revised fiscal year 1970 submission by cancellation of ships from fiscal year 1969 and prior programs.....	182. 7
Total shipbuilding specifically covered in revised fiscal year 1970 submission.....	349. 7
To be covered by reprogramming in fiscal year 1969 or fiscal year 1970.....	104. 3
Total shipbuilding to be covered in fiscal year 1969 and fiscal year 1970.....	454. 0
Other increases, to be financed by reprogramming in fiscal year 1969 or fiscal year 1970.....	255. 1
Total to be covered through fiscal year 1970.....	709. 1
To be covered in fiscal year 1971 or later (includes \$215 million for shipbuilding).....	852. 5
Total deficiency.....	1, 561. 6

The shipbuilding price increases of \$349.7 million for which provision is made in the revised estimates are more than offset by program reductions—that is, by cancellation of specific ships. Accordingly, we are now asking for a smaller fiscal year 1970 appropriation for "Shipbuilding and conversion, Navy," than was requested in January 1969.

To meet the immediate problem we propose three things: First, we ask that the Congress appropriate the reduced amount now requested for "Shipbuilding and conversion, Navy", which action will meet most of the shortage through fiscal year 1970; second, we will submit reprogramings as necessary, to cover the remaining shortages through fiscal year 1970; and, third, we will continue to refine our cost estimates, to assure that all significant shortages are identified, and will provide updated estimates of our fiscal year 1971 shortages in next year's budget, and propose methods for handling them.

Beyond the immediate handling of this problem, I am sure that the committee is interested in how these conditions arose, and the corrective steps we plan. I believe that these matters can best be approached by discussing shipbuilding and other programs separately.

SHIPBUILDING

The problem in shipbuilding and conversion is especially acute. The identified fund shortage is \$669 million—over 40 percent of the total. As indicated, \$349.7 million of this shortage is covered by specific actions reflected in the revised budget requests. Another \$104.3 million will be covered by fiscal year 1969 and fiscal year 1970 reprogramming, and the remaining \$215 million will be covered in fiscal year 1971 and thereafter. These shortages loom very large in relation to the size of the annual shipbuilding program, and cannot be handled within our normal reprogramming capability.

In addition to the relative size of the problem in the shipbuilding program, it should also be noted that special arrangements have been made in this area which should have helped us to avoid such problems. In budgeting for shipbuilding, we have for a number of years made explicit provision for price escalation, for change orders, and for future characteristics changes.

For these reasons, it is clearly important that we devote a considerable amount of attention to the factors underlying our current problem in the shipbuilding program. Our analysis indicates that the problem springs from a number of developments, generally beginning in 1965. In that year, a number of new firms began bidding for shipbuilding. While this is a healthy development for the long run, the participation of firms without extensive shipbuilding experience naturally produces some initial complications. Under these circumstances, it becomes more difficult to assure that there is a clear understanding of what is involved on both sides of the table.

In the meantime, price and wage rates began to accelerate much more sharply, and labor and material shortages began to take on more serious proportions. This problem was compounded for shipbuilding because of changes in the allowances for price escalation included in budget estimates. In the early 1960's these allowances were too high, and surpluses accumulated in the appropriation. The allowances were decreased based on this experience, at just about the time that prices and wages began to increase rapidly. Also beginning in 1965, naval and private yards had to meet a large volume of urgent and high-priority requirements for support of military operations in Southeast Asia.

Special budgetary cutback efforts have been made in each of the past 3 years. Shipbuilding programs have been sharply reduced in

these special cutbacks, and in regular budget reviews and the appropriation process as well. While it is difficult to trace the specific effects of such actions, it is clear that they have contributed to some degree to instability and uncertainty in the shipbuilding program.

The cumulative effect of these problems was to produce a series of delays in the shipbuilding effort across the board. Each element of the program had to incorporate more years of inflation, and at higher annual rates, than had been provided for. Engineering changes increased as a result of design difficulties, and as the passage of time provided greater opportunities for change. These, coupled with schedule delays and revisions, added to the cost increases. The Navy had to cope with these problems while the developments mentioned above had sharply reduced the flexibility necessary for successful execution of the program. All these factors, in combination, had a multiple impact upon costs.

It is clear that two steps are essential. First, we must develop a program that reflects a better balance between requirements and production capability over a period of time.

Second, the management of shipbuilding programs must be strengthened. This includes the entire range of activities, including design, cost estimating and control, and control over characteristics changes and engineering changes. As Secretary Laird had indicated, we are placing great emphasis upon these improvement efforts. Major changes in the management and control of shipbuilding programs are being made.

In programs other than shipbuilding, our problems with respect to cost growth and related financing shortages are not nearly as serious. The estimates are as follows:

	<i>Millions</i>
To be covered by reprogramming through fiscal year 1970.....	\$255. 1
To be covered in fiscal year 1971 or later.....	637. 5
Total.....	892. 6

As I have indicated earlier, these figures do not reflect the amounts specifically included in the revised fiscal year 1970 budget estimates for cost growth; \$225 million for the C-5A, to cover the difference between target and ceiling amounts on the A run, and \$71.4 million for the F-111 A, D, and E. The \$893 million reflects our best estimate of the amounts that will ultimately be paid to complete the systems, over and above the amounts included in the January budget estimates.

In appraising these figures, we think it is important to bear in mind that they constitute a relatively small percentage of our procurement and R.D.T. & E. program totals. These figures represent a one-time picture of price increases spanning several program years. The figures are strongly influenced by the abnormal material and labor cost increases of the recent past.

Furthermore, our budget estimates have included relatively modest amounts for change orders. Our budget estimates for systems are not intended to cover major changes. Such major changes, however, are becoming increasingly common in the new and sophisticated systems which push the limits of the state of the art. We have chosen to handle these major and costly changes as separate items, in order to make the initial competitive procedures as fair and realistic as possible. These changes, as they have arisen, have been financed either by repro-

graming or by special appropriation requests—in either event, with the full knowledge of the Congress.

Under the circumstances, I believe that fund shortages, as we have used the term here, should not be taken as a sign of general budgetary and management weaknesses. Indeed a shortage in some amount is inevitable, for at least these reasons:

1. ABNORMAL PRICE INCREASES

We do not budget for these. The fiscal year 1969 budget was based on a projection of contracts executed or economic situations existing in the summer of 1967, but abnormal labor and price increases since that time will cause a deficiency when available funds are compared with actual cost of systems to be delivered in 1969 and 1970.

2. CHANGE ORDERS

We make relatively limited provision for these but, over a span of years, technology opens new possibilities. During the development and production of a weapon, it will continue to make good sense to incorporate new features—increasing the cost, certainly, but producing greater capabilities. There is no question that change orders must be carefully controlled, but they should continue to be made where warranted.

3. INDIVIDUAL SYSTEMS PROBLEMS

At any time, across the entire spectrum of Defense procurement, some systems will inevitably be experiencing design or production difficulties. Some of these systems will be cut back or canceled, and the funds provided for them will be a source of recoupment. For other systems, the best decision will be to proceed, accepting the higher costs. A picture taken at any point in time will inevitably depict some of the latter systems.

In closing this part of my discussion, let me assure you that the problem of cost overruns is receiving concentrated management attention at the highest levels within the Department.

FULL FUNDING

On August 2, 1968, this committee requested the General Accounting Office to look into the procedures employed by the Department in the application of the full funding concept. The GAO report on this matter was issued in February 1969. This report defines full funding as follows:

Full funding exists when adequate obligational authority is available in the procurement appropriation to meet the currently estimated cost of a budget line item. A budget line item includes a specific quantity of end items, the procurement of which is authorized to be initiated in the program year.

That report also quotes a letter of May 15, 1957, from this committee recommending that " * * * all necessary action be taken * * * to insure that procurement funds are administered so as to accomplish the full program for which the appropriation was justified." Our basic directive in this area was issued shortly after receipt of that letter.

The GAO report listed four matters for further consideration as follows:

Issue a single comprehensive instruction for the complete implementation of the full funding concept.

Conduct a study, in conjunction with the Bureau of the Budget, of the current objectives of the full funding concept and determine and establish the most effective funding processes consistent therewith. The study could consider whether and how the full funding concept should disclose and relate all funding requirements, subordinate as well as primary, regardless of their appropriation sources.

Consider the need for revising practices and procedures which will help accelerate the deobligation of funds.

Determine the additional controls which should be instituted over funds retained by the services for obligation.

As to the first point, our basic instruction will be updated and expanded. The Bureau of the Budget has agreed to participate in the study called for in the second point, and this will be undertaken shortly. The results will be furnished to this committee. As to the third and fourth points, I directed that a special audit be made, concentrating on fiscal year 1969 and prior funds, with results to be available by July 31, 1969—in time for the fiscal year 1971 budget cycle. I also directed that the reports contain recommendations for improvement in the overall management of prior-year fund balances.

BUDGETING AND ACCOUNTING FOR OPERATING COSTS

Next, Mr. Chairman, I would like to discuss our efforts to achieve better budgeting and accounting control for operating costs, which comprise about 57 percent of the Defense budget. This has been a matter of major interest to this committee since formalized improvement actions were initiated in 1965.

Our objectives in this connection have been threefold: first, to integrate the program and budget structures for operating expenses. The problem here is that the budget structure is in terms of inputs—aircraft fuel, pay of officers, et cetera—while the program structure is in terms of outputs—B-52 squadrons, infantry divisions, et cetera. While we reached program decisions in terms of the program structure, we were unable to allocate, control, or account for operating expenses in this way. The constant need to convert from one structure to the other proved cumbersome, and inevitably led to imbalances, poor program costing, and other problems.

I believe it is worthwhile to explain why this mismatch between program and budget structures presented such difficult problems in the area of operating expense, as contrasted with research and investment. For R.D.T. & E., the program and budget substructures were brought into close alignment several years ago, so there is no mismatch. For investment—procurement and construction—most of the costs involve a relatively few major line items, which can readily be tracked in the two structures. Operating expenses, however, involve millions of transactions worldwide, and these have been budgeted and accounted for in terms of a structure that dates from the early 1950's. It is for this reason that integration of the program and budget structures for operating expense became a priority matter.

Our second objective is to tie the control of operating resources more closely to lines of command. A base commander, for example, might in the past have been funded for a small part of his operating costs—5 percent or 10 percent in some instances. The rest—supplies, maintenance and services, military personnel—were furnished on a free-issue basis by a variety of functional managers, widely scattered geographically and organizationally, and each charged with trying to balance worldwide needs against the resources of his particular commodity. In some cases, financial managers imposed various limitations and restrictions on the use of funds. Such a pattern makes it very difficult for the local commander to achieve a balanced application of resources to needs. These problems are multiplied in a unified command, since the pattern of funding and free issue differed greatly among, as well as within, the services. By providing a standard pattern of expense coverage and expense control, and putting the control of operating expenses in command lines, we hope to make it possible for commanders to do a better job of balancing resources and needs.

Our third objective is to achieve economy and better management by eliminating or reducing free issue. If a base commander receives labor or supplies as free issue—free in the sense that they are not charged to his budget—he has relatively little incentive to be economical in their use. He cannot, for example, cut down on inventories of supplies he does not need and use the proceeds to meet urgent requirements.

I believe I can illustrate all of our objectives using a rather prosaic example, such as helicopter parts. Suppose that a program decision is made to reduce the number of units using these helicopters. The program would be reduced by a dollar amount including a factor for parts. However, these parts were included—with millions of other items—in a few budget activities within the procurement appropriations. The parts might or might not have been in a buy position. Also, other line items for other aircraft and for other systems might be up or down. With great numbers of operating units, equipment, line items of supply, and program decisions, the relationship between program decisions and budget action became almost impossible to maintain. Under present arrangements, since operating units are funded for the parts, their expenses can simply be deducted from the program structure and the budget structure at the same time. Problems of buy-positions, inventory levels, et cetera, are handled through the stock funds.

Under the old system, an inventory manager would determine requirements and initiate procurement for a given number of line items, including some of these helicopter parts. He had a limited amount of money, and virtually unlimited stated requirements from the users of the helicopters—not being under any financial constraint, they could overorder. Each of these inventory managers became, in effect, a resource allocator—he and his superiors had to decide which commands they would take care of, to what extent, and for which parts. The problem of balance becomes impossible when it is recognized that there are dozens of inventory managers in different locations involved in support of each helicopter—not to mention other aircraft and equipment used by the same command, or maintenance, transportation, and other functional areas.

The new system takes these functional managers out of the resource allocation business. They react to funded requisitions from the users.

The user decides, within his total fund availability, whether he should order more helicopter parts.

And, third, the user is given an incentive to be more economical in his use and stocking of these parts. If he orders too many, he must cut back on something else. Conversely, if he can cut back, he can use the resources for other purposes. This was not possible under the old system.

In this overall effort, one of the most difficult—but most important—objectives concerns the management of military personnel. I do not need to emphasize to this committee the immense costs involved here. These costs comprise nearly one-third of the Defense budget, and have grown from \$14.2 billion in 1964 to \$26 billion for 1970 (including the pay raise). Note, in table 7, that basic pay rates in fiscal year 1969 are over 50 percent above the level at the beginning of fiscal year 1964—the fiscal year 1970 raise will bring this figure to 39 percent. Retired pay more than doubles over this period, and will continue to grow rapidly as far ahead as we can see.

We believe that better management of military personnel can be achieved through the integration of financial and personnel management techniques and channels. We are working with the military departments cooperatively to this end. In resource planning, in personnel allocation, in personnel assignment we think the knowledge of and consideration of financial implications will strengthen military personnel management.

These, then, are our objectives, Mr. Chairman. As you know, many steps have already been taken. The program structure was overhauled in 1966, to align it more closely with organizational units. Beginning with fiscal year 1969, we have expanded the scope of stock funds by including aircraft parts and other technical material. This, coupled with industrial fund expansion, is directed at the free-issue problem.

We have established a uniform system of expense accounts, covering each organization and each program element, with a breakdown by element of expense and by functional category. Expense elements are similar to the object schedule, but are in somewhat greater detail—they include, for example, civilian payroll, aircraft fuel, et cetera. Functional categories include such items as materiel maintenance, supply administration, medical activities, et cetera. These are useful for functional reviews, which cut across program and budget lines.

In addition, we began this fiscal year to use expense operating budgets, covering all expenses, and to account in this fashion. Our internal program/budget reviews are conducted on this basis.

Based upon our experience with the system to date, and thorough reviews in which the military departments participated, we have concluded that this system is sound and should be continued in all essential respects. Some modifications are necessary, and these will be made.

MANAGEMENT OF ADP SYSTEMS

Before closing my statement, I will discuss briefly the steps we have taken for the control of ADP systems. In the report on our fiscal year 1969 appropriation bill, this committee stated that a close relationship should be established between the new review offices established in each service and the office under my cognizance, and, further, that expansion of all ADP systems should be stopped until these offices have reviewed any plans for additions.

In June 1968, the ADP management function was transferred from the office of the Assistant Secretary of Defense for Installations and Logistics (I. & L.) to my office. At the same time, the Assistant Secretary for Installations and Logistics (I. & L.) established a Materiel Management System Division to monitor ADP-based logistics systems. In September 1968, the Assistant Secretary (I. & L.) and I, and our counterparts in the military departments and Defense agencies, reviewed the major ADP-based Defense logistics systems, including those with which the committee was concerned last year. We found common functional areas within the logistics operations of the services and agencies where jointly developed specifications and design objectives could be pursued. However, each of the services and agencies is at a different stage in the normal evolutionary process of achieving internally standardized systems, and delay of these efforts pending development of DOD-wide standard approach would mean that little or no progress would occur for about 5 years. It would also stop the services and agencies from implementing needed improvements in systems and from installing new equipment with better cost performances.

In order to realize maximum benefits from the development work already done, and recognizing that some components had already partly implemented new systems, a decision was made to permit these efforts to continue with some modifications: First, all remaining development work would be screened against the work completed by other components to eliminate the possibility of duplications, and second, a long-range plan for standard materiel management systems would be developed and all future efforts would be carried out within the context of this plan. The Assistant Secretary of Defense for Installations and Logistics has created a separate office for this specific purpose. Secretary Shillito will appear before your committee tomorrow, and he can discuss this effort in more detail.

An integral part of our ADP systems review effort was begun in conjunction with the fiscal year 1970 budget review process. Materials were required in the budget submission of each Defense component covering major ADP systems and installations, showing actual historical, requested budget year, and planned out-year costs and benefits. Based upon these data and the ensuing review by my ADP management staff, decisions were made to expand, reduce, or maintain ADP systems. An expanded budgetary submission will be required from the Defense components for fiscal year 1971, so that in its second year this review can become even more comprehensive.

Following this necessarily brief budgetary review of ADP systems, we began a program of indepth reviews of field activities, especially those performing development work for ADP systems to be used at multiple activities. These visits, made in cooperation with the OSD functional managers, are used to examine the soundness of the underlying system concepts and the ADP techniques to be used in development and operation of the system, as well as to provide us with a better base of information on requirements and capabilities which will be useful in planning and evaluating new systems.

We have also examined the procedures used by the services to control automatic data processing. Organizational and procedural changes have been made to strengthen and improve the central approval of new or expanded ADP systems at the service level.

In addition to actions to implement the committee's recommendation on systems review, we have taken other measures to improve ADP management:

1. An ADP Policy Committee was formed to identify critical problems and recommend solutions. This committee consists of the senior ADP officials from the DOD components and is chaired by the Deputy Assistant Secretary of Defense (information).

2. A DOD instruction was developed to provide guidance for sharing the ADP equipment and to insure implementation of the policy on sharing. Sharing resources in lieu of purchase of equipment or services has increased. One partial measure of this is the reimbursements reported by the services and agencies for ADP services. In fiscal year 1968 \$13,750,000 was reported compared to \$11,867,000 for fiscal year 1967, \$117,659,000 has been forecast for fiscal year 1969.

3. A policy was developed that encourages the services and agencies to allow all qualified vendors to bid on replacement and additional equipment such as tape drives, disk units, printers, and so forth, normally provided by computer manufacturers. This could result in reduced costs.

4. Reutilization of ADPE has increased. In fiscal year 1968 \$39,764,-300 worth of equipment which was excess to one service or agency was transferred to another. In the first 6 months of fiscal year 1969, \$23,921,000 was reutilized. In addition, DOD reutilized \$4,263,700 of ADPE from other agencies in fiscal year 1968 and \$4,445,800 during the first 6 months of fiscal year 1969. Equity in leased equipment was also retained by reuse of ADPE worth \$19,837,900 in fiscal year 1968 and \$6,511,100 in the first 6 months of fiscal year 1969.

5. A policy was issued to permit the services and agencies to competitively replace older equipment without first redesigning the entire system. Frequently the time and cost of system redesign eliminated any savings of using more cost effective machines earlier.

6. We have also been working closely with GSA to effectively implement the provisions of Public Law 89-306, which requires GSA to act as a central procurement agency for ADPE for all Federal agencies.

I would like to add, Mr. Chairman, in the budget review for the first time we have called for long-range system plans for ADPE, imperfectly the first time, but I hope much more definitively this coming cycle. But, because we were looking and focusing on system plans for ADPE, we were able to reduce service requests during the development of the 1970 budget by some \$140 million.

I think we are beginning to get good control over the ADPE system in the Department and I think this will continue.

Mr. Chairman, this concludes my statement and I would suggest the attached tables be included in the record.

Mr. WHITTEN. Without objection, the tables will be included in the record at this point.

(The tables follow:)

Table 1
 Department of Defense
 BUDGET REVISIONS - FY 1969 and FY 1970
 (Millions of Dollars)

	FY 1969			FY 1970		
	Submitted Jan. 1969	Revisions	Current Request	Submitted Jan. 1969	Revisions	Current Request
Total Obligational Authority (TOA):						
Military Personnel	23,996	-44	23,952	24,384	-7	24,377
Operation and Maintenance	22,516	+17	22,533	21,941	-149	21,792
Subtotal - Operations	46,512	-27	46,485	46,325	-156	46,169
Procurement	24,455	-506	23,949	25,124	-1,996	23,128
Research, Develop., Test & Eval.	7,647	-	7,647	8,179	+48	8,227
Military Construction	1,332	-85	1,247	1,951	-533	1,418
Family Housing	536	-10	526	634	-7	627
Civil Defense	61	-	61	75	-	75
Special Foreign Currency Program	11	-	11	4	-	4
Subtotal - Military Functions	80,554	-628	79,926	82,293	-2,644	79,649
Military Assistance	748	-	748	709	-	709
Total - TOA	81,302	-628	80,674	83,002	-2,644	80,358
Financing Adjustments	-4,003	+478	-3,525	-1,970	-463	-2,433
Budget Concept Adjustments	-301	-	-301	-387	-	-387
Budget Authority (NOA)	76,998	-150	76,848	80,645	-3,107	77,539
Outlays	78,400	-	78,400	79,000	-1,113	77,887

Table 2

SUMMARY OF TOA CHANGES IN BUDGET AMENDMENTS
(in millions of dollars)

	<u>1969</u>	<u>1970</u>
<u>Southeast Asia Support:</u>		
Munitions and related items	-138.6	-905.8
Aircraft procurement, net	-6.8	-21.0
Other procurement	-33.5	-30.0
Military personnel	-33.4	-42.6
Operation and maintenance	+10.6	-91.5
RVNAF modernization (Phase II)	+35.8	+120.3
Emergency fund, Defense	-	+40.0
Net, Southeast Asia support	<u>-165.9</u>	<u>-930.6</u>
<u>Strategic Systems:</u>		
SENTINEL	-100.8	-896.0
FB-111 and SRAM	-140.6	-387.7
MINUTEMAN	+8.4	-151.0
B-52 modifications	-37.7	-102.6
All other, net	-23.4	-81.4
Net, strategic systems	<u>-294.1</u>	<u>-1,618.7</u>
<u>Shipbuilding</u>	<u>-108.9</u>	<u>-66.9</u>
<u>All other, net</u>	<u>-59.0</u>	<u>-27.4</u>
Net, TOA reductions in budget amendment	-627.9	-2,643.6

Table 3

SUMMARY OF CHANGES, FY 1969 to FY 1970, in DOD BUDGET AS AMENDED
(TOA in millions of dollars)

	Southeast Asia			Other			Total		
	<u>1969</u>	<u>1970</u>	<u>Change</u>	<u>1969</u>	<u>1970</u>	<u>Change</u>	<u>1969</u>	<u>1970</u>	<u>Change</u>
Military personnel	5,683	5,645	-38	18,269	18,732	+463	23,952	24,377	+425
Operation and maintenance	9,751	8,733	-1,018	12,782	13,059	+277	22,533	21,792	-741
Procurement	10,971	7,021	-3,950	12,978	16,108	+3,130	23,949	23,128	-821
RDT&E	804	671	-133	6,844	7,556	+712	7,647	8,227	+580
Military construction	272	25	-247	975	1,393	+418	1,247	1,418	+171
Family Housing				526	627	+101	526	627	+101
Civil Defense				61	75	+14	61	75	+14
Special Foreign Currency				11	4	-7	11	4	-7
Military Assistance				748	709	-39	748	709	-39
Total	27,480	22,095	-5,385	53,194	58,263	+5,069	80,674	80,358	-316

Table 4
 Department of Defense FY 1969 and FY 1970 Budget Estimates
 For RVNAF Modernization
 (in thousands of dollars)

	FY 1969				FY 1970
	As Enacted	Reprogramming	Supplemental	Total	
Phase I as submitted in January 1969:					
Operation and maintenance, Army	68,800		50,700	119,500	155,300
Operation and maintenance, Navy		1,100		1,100	3,100
Operation and maintenance, Marine Corps		274		274	36
Operation and maintenance, Air Force		1,125		1,125	24,335
Procurement of Equipment and Missiles, Army	32,300		247,700	280,000	249,500
Shipbuilding and conversion, Navy		5,450		5,450	300
Other procurement, Navy		7,000		7,000	200
Procurement, Marine Corps		500		500	2,700
Aircraft procurement, Air Force	30,900		44,400	75,300	83,400
Other procurement, Air Force				-	12,700
Total Phase I, as submitted in January 1969	<u>132,000</u>	<u>15,449</u>	<u>342,800</u>	<u>490,249</u>	<u>531,571</u>
Phase I April revision:					
Aircraft procurement, Air Force		<u>+44,400</u>	<u>-44,400</u>	-	-
Phase I, as submitted in April 1969	<u>132,000</u>	<u>59,849</u>	<u>298,400</u>	<u>490,249</u>	<u>531,571</u>
Phase II not reflected in January 1969 submission; April 1969 submission as follows:					
Operation and maintenance, Army			9,700	9,700	22,800
Operation and maintenance, Navy					2,000
Operation and maintenance, Air Force					20,000
Procurement of equipment and missiles, Army		26,100		26,100	75,300
Other procurement, Navy					200
Total Phase II, as submitted in April 1969		<u>26,100</u>	<u>9,700</u>	<u>35,800</u>	<u>120,300</u>

Table 4
 Department of Defense FY 1969 and FY 1970 Budget Estimates
 For RVNAF Modernization
 (in thousands of dollars)

(Continued)

Source of funds for reprogramming. Phase I reflects \$59,849,000 in reprogramming, including \$2,499,000 for three operation and maintenance appropriations and \$57,350,000 for four procurement appropriations.

For the three operation and maintenance appropriations involved here, non-SEA programs were reduced by a total of \$88.4 million to comply with PL 90-364, and these amounts were applied to meet increased Southeast Asia requirements, including the \$2.5 million for Phase I RVNAF modernization. Action was taken under the reprogramming understandings with the Congress as necessary. The decreases included equipment overhaul (Navy), CONUS support activities, real property maintenance, and logistic operations.

For the procurement appropriations, the sources of funds for Phase I are as follows:

	<u>(thousands of dollars)</u>
Shipbuilding and conversion, Navy:	
Destroyer escort, 1968 program	610
Service craft, 1969 program	2,940
AGOR (research ship), 1968 program	1,000
Patrol boats	900
Total, Shipbuilding and conversion, Navy	<u>5,450</u>
Other procurement, Navy - Armored troop carrier/command control boat	<u>7,000</u>
Procurement, Marine Corps - 155mm projectile, M449	<u>500</u>
Aircraft procurement, Air Force - FB-111	<u>44,400</u>

For Phase II, the source of the \$26.1 million for Procurement of equipment and missiles, Army is DCPG (Defense Communications Planning Group).

Table 5

CHANGES FROM FY 1969 to FY 1970 FOR STRATEGIC FORCES,
 UNDER REVISED BUDGET ESTIMATES
 (TOA in millions of dollars)

	<u>Mil.</u> <u>Prsnl</u>	<u>Oper.&</u> <u>Maint.</u>	<u>Procure-</u> <u>ment</u>	<u>RDT&E</u>	<u>Mil.</u> <u>Const.</u>	<u>Other</u>	<u>Total</u>
Program 1 (Strategic Forces): <u>a/</u>							
SAFEGUARD	+2.4	-7.1	+29.9	+89.4	-85.9		+28.7
FBM/POSEIDON	-1.3	-77.0	+256.6	-159.0	-3.5		+15.8
Support Ships	+8	-1.4	-56.2	-	-		-56.7
FB-111	+9.9	+6.0	-452.6	+45.9	+1.0		-389.7
SRAM	-	-	+20.4	-50.6	+3.0		-27.2
MINUTEMAN	+9	+7.9	-3.2	-73.3	-10.7		-78.4
F-12	-	-	-55.0	-	-		-55.0
Civil Defense	-	-	-	-	-	+14.4	+14.4
Other	-72.2	-56.7	+19.0	+39.0	+34.9	+18.1	-17.9
Total, Program 1	-59.5	-128.3	-241.1	-168.6	-61.2	+32.5	-566.1
Program 6 (Research & Development) <u>b/</u>	-	-	-	+344.0	-	-	+344.0
Net, Programs 1 & 6	-59.5	-128.3	-241.1	+235.4	-61.2	+32.5	-222.1

a/ Excludes all cost changes for B-52 and KC-135, which largely involve Southeast Asia operations.

b/ Program 1 (Strategic Forces) includes RDT&E costs for operational systems development. R&D costs for systems not yet at this stage are included in Program 6. Increases from FY 1969 to FY 1970 for these systems are as follows:

	(TOA in Millions)
Advanced manned strategic aircraft (AMSA)	75.2
NIKE-X	37.9
Hard rock silo	25.0
Kwajalien Missile Range	24.2
Undersea Long-Range Missile System (ULMS)	20.0
Eastern and Western Test Ranges	19.4
CONUS interceptor	18.5
Advanced Ballistic Missile Reentry System (ABRES)	16.4
Subsonic Cruise Armed Decoy (SCAD)	13.1
Defense Sub-system Development and Demonstration	11.9
DEFENDER	10.7
Manned Orbiting Laboratory (MOL)	10.3
Advanced ICBM	10.0
Other, net	51.4
Total	<u>344.0</u>

Table 6

**MILITARY BUDGET RELATIONSHIPS
WITH GNP AND TOTAL FEDERAL BUDGET**

Fiscal Years	Fiscal year totals, billions					Federal budget outlays as percent of GNP ^{h/}			Military Outlays as Percent of Federal Budget ^{1/}
	GNP	Federal Budget Outlays	Mil. ^{a/}	Other	Off- sets ^{k/}	Total	Mil.	Other	
1948 ^{b/}	\$244.5	\$36.5	\$11.1	\$25.4	N/A	14.9%	4.5%	10.4%	30.4%
1953 ^{c/}	355.1	76.7	47.6	29.1	N/A	21.6	13.4	8.2	62.1
1955	378.6	68.5	37.8	30.7	N/A	18.1	10.0	8.1	55.2
1959	469.1	92.1	43.7	50.6	-2.2	19.6	9.3	10.8	46.3
1960	495.2	92.2	43.1	51.4	-2.3	18.6	8.7	10.4	45.6
1961	506.5	97.8	44.6	55.7	-2.5	19.3	8.8	11.0	44.5
1962	542.1	106.8	48.3	61.0	-2.5	19.7	8.7	11.3	44.2
1963	573.4	111.3	49.5	64.5	-2.7	19.4	8.6	11.2	43.4
1964	612.2	118.6	50.8	70.7	-2.9	19.4	8.3	11.5	41.8
1965	654.2	118.4	47.1	74.5	-3.2	18.1	7.2	11.4	38.7
1966	720.7	134.7	55.2	82.9	-3.4	18.7	7.7	11.5	40.0
1967	766.5	158.4	68.3	94.1	-4.0	20.7	8.9	12.3	42.1
1968	822.6	178.9	78.0	105.5	-4.6	21.7	9.5	12.8	42.5
1969	893.0	185.6 ^{e/}	78.4	112.3	-5.1	20.8	8.8	12.6	41.1
1970R	960.0 ^{d/}	192.9	80.0 ^{d/}	118.6	-5.7	20.1	8.3	12.4	40.3
1970	960.0 ^{d/}	190.1 ^{f/}	77.9	117.9	-5.7	19.8	8.1	12.3	39.8

^{a/} DoD military functions and military assistance.

^{b/} 1948 is the lowest year for military outlays since World War II.

^{c/} Korea peak.

^{d/} Approximated.

^{e/} Revised estimate, Bureau of the Budget.

^{f/} Revised estimate of \$192.9 billion less \$2.8 billion for July 1, 1969 government-wide pay raise.

^{g/} Undistributed intragovernmental transactions deducted from Government-wide totals under new concepts. Includes Government contribution for employee retirement and interest received by trust funds.

^{h/} Figures do not add to total for 1959 and later because of intragovernmental transactions.

^{i/} For 1959 and later, this is the military percentage of the agency totals -- before deducting intragovernmental transactions.

^{j/} Reflects distribution of government-wide pay raise effective July 1, 1969.

Table 7

SPECIAL SOUTHEAST ASIA COSTS
AND IMPACT OF PAY AND PRICE INCREASES

Fiscal Years, Current Dollars:	Budget Outlays, DoD Military & MAP (\$ billions)				Non-Southeast Asia Outlays as Percent of:	
	Total	Southeast Asia	Retired Pay	Other	Federal Budget	GNP
1964	\$50.8	\$ -	\$1.2	\$49.6	41.8%	8.3%
1965	47.1	.1	1.4	45.6	38.7	7.2
1966	55.2	5.8	1.6	47.8	35.8	6.9
1967	68.3	20.1	1.8	46.4	29.7	6.3
1968	78.0	26.5	2.1	49.4	28.1	6.3
1969	78.4	28.8	2.4	47.2	26.0	5.6
1970	77.9 ^{a/}	24.9	2.7	50.3	27.1	5.5
Price and pay increases since 1964	<u>-12.7</u>	<u>-3.8</u>	<u>-.5</u>	<u>-8.5</u>		
FY 1970 in FY 1964 dollars	<u>65.1</u>	<u>21.1</u>	<u>2.2</u>	<u>41.8</u>		
Changes since 1964 in 1964 dollars	+14.4	21.1	+1.0	-7.8		

^{a/} Without July 1, 1969 pay raise of \$2.1 billion.

NOTE: Detail may not add to totals due to rounding. Figures in millions are on next page.

Attachment to Table 7

**IMPACT OF PAY AND PRICE INCREASES
ON DOD PROGRAMS, FY 1964 TO FY 1970**

	Outlays in FY 1970 Budget (\$ Millions)	Deflator	Cost at 1964 Prices (\$ Millions)	Cost of Pay & Price Increases (\$ Millions)
Total, excluding retired pay:				
Active military basic pay & related	\$12,921	135.8	\$ 9,514	\$ 3,407
Other active military costs	7,524	115.0	6,543	981
Total active military	20,445	127.3	16,057	4,388
Reserve & Guard drill pay	423	135.8	311	112
Other reserve components costs	567	115.0	493	74
Total military personnel	21,435	127.1	16,861	4,574
Civilian payroll	10,577	124.2	8,516	2,061
All other	43,155	115.0	37,526	5,629
Total, excluding retired pay	75,167	119.5	62,903	12,264
Retired pay	<u>2,720</u>	<u>121.7</u>	<u>2,235</u>	<u>485</u>
DoD total	<u>77,887</u>	<u>119.6</u>	<u>65,138</u>	<u>12,749</u>
Southeast Asia:				
Military personnel	5,616	127.3	4,412	1,204
Civilian payroll	1,050	124.2	845	205
All other	18,196	115.0	15,823	2,373
Total, SEA	<u>24,862</u>	<u>117.5</u>	<u>21,080</u>	<u>3,782</u>
Non-SEA, excluding retirement	<u>50,305</u>	<u>120.3</u>	<u>41,823</u>	<u>8,482</u>

Deflators

Military (basic and drill pay) and civilian pay, pay raises as follows:

	Military	Civilian
10/1/63	14.2%	
1/5/64		4.1%
7/1/64		4.2%
9/1/64	2.3%	
9/1/65	10.4%	
10/1/65		3.6%
7/1/66	3.2%	2.9%
10/1/67	5.6%	4.5%
7/1/68	<u>6.9%</u>	<u>4.9%</u>
Base prior to FY 1964 raise	100.0	100.0
Effective rate in FY 1964	110.65	102.05
Cumulative effect of above raises from base 100	150.26	126.75
Ratio of current rate to FY 1964 (line 3 ÷ line 2)	135.8	124.2

Note that this does not reflect the July 1, 1969 pay raise. Military basic pay and civilian salaries are not comparable, because basic pay excludes many elements of income. Roughly, a 10% increase in basic pay is equivalent to a 6% increase in civilian salaries.

Attachment to Table 7 (continued)

Purchases of goods and services

Non-compensation component of index for Federal purchase of goods and services, per Department of Commerce:

Calendar Year

1964	104.8
1965	108.1
1966	108.7
1967	111.2
1968	114.3
1Q 1968	113.1
2Q 1968	113.8
3Q 1968	114.7
4Q 1968	115.4
1Q 1969	116.7

Unofficial estimates:

4Q 1969	119.0
4Q 1970	122.0

Calendar 1970 average of 120.5 ÷ 104.8 (CY 1964) = 115

Retired pay

Average retired population:

FY 1964	410,853
FY 1970	759,617

Increase 84.9%

FY 1970 outlays	(\$ 000)	2,720,000
Outlays, \$1,209,000 in FY 1964 + 84.9% =		<u>2,235,000</u>
Increases related to higher average pay		<u>485,000</u>

Table 8

UNEXPENDED BALANCES, JUNE 30, 1969
(Dollars in Billions)

	<u>DoD Military and MAP</u>	<u>Other</u>	<u>Total</u>
Unexpended balances 6/30/69:			
Unobligated	\$14.0 (10%)	\$125.2 (90%)	\$139.2 (100%)
Obligated	<u>34.6 (40%)</u>	<u>52.2 (60%)</u>	<u>86.8 (100%)</u>
Total unexpended	48.6 (21%)	177.5 (79%)	226.1 (100%)
 Unexpended balance related to FY 1970 outlays:			
As a percentage	61.5%	152.6%	115.7%
In months	7.4	18.3	13.9

APPENDIX

FINANCING THE FISCAL YEAR 1970 DIRECT BUDGET PLAN

The FY 1970 program includes total obligational authority (TOA) of \$80,358,303 thousand and budget authority of \$77,538,605 thousand. These figures cover all military functions of the Department of Defense and military assistance, and the budget authority totals reflect the new budget concepts.

The first column of Table 4 shows the TOA (direct budget plan) by appropriation. The next five columns show the financing adjustments, and the last column reflects budget authority. These financing adjustments are of three types:

- (1) Application of prior-year balances or sale of inventory without replacement -- such adjustments have been reflected in DoD budgets for many years. They reflect the difference between TOA and amounts appropriated for all appropriations except family housing.
- (2) Budget concepts adjustments applicable to family housing.
- (3) Trust funds, proprietary receipts, and intragovernmental transactions -- these affect the budget authority totals under the new budget concepts, but do not affect the amounts of appropriations requested.

The financing adjustments reflected in Table 4 include adjustments in the first category as follows:

	<u>(\$ Thousands)</u>
Unobligated balance 6/30/69 available to finance FY 1970 programs (column (2))	-935,121
Recoupments (reprogramming from prior year budget plans) in FY 1970 (column (3))	-897,999
Resources from reimbursable sales not requiring replacement (column (4))	-209,343
Transfers from stock funds to procurement appropriations (included in column (5))	-400,000
Total, first category	<u>-2,442,463</u>

The Family Housing and Homeowners Assistance programs are the only activities within the Department of Defense affected by the new budget concepts pertaining to agency borrowing, in that debts, such as mortgages, are assumed and then repaid over a period of succeeding years. The full amount of the mortgage is included as TOA in the year of assumption and accordingly, mortgage repayments in succeeding years are not included again as TOA. Appropriated funds are requested only for the annual payments required during the appropriation year. Budget authority includes the appropriation plus the authorization to spend agency debt receipts (mortgage assumptions) and less appropriated funds applied to debt reduction.

Under these new budget concepts, both TOA and budget authority for "Family Housing, Defense" are stated on a different basis than in the past, but the appropriation requested is on the same basis as the previous requests. Under these new concepts, transactions involving the retirement of debt have been netted out of the totals. The effect may be illustrated, using the FY 1970 estimates for "Family Housing, Defense":

	(\$ in Thousands)	
	"Old" basis, prior to changes in budget concepts	Present basis
TOA for debt reduction	92,918	-
Other TOA	<u>613,644</u>	<u>613,644</u>
Total program (TOA)	706,562	613,644
Financing adjustments:		
Unobligated balance available start of year	-5,251	-5,251
Receipts and reimbursements	-6,893	-6,893
Receipts applied to debt reduction	-	<u>+6,300</u>
Net financing adjustments	<u>+12,144</u>	<u>-5,844</u>
Budget Authority (Program less available financing)	694,418	607,800
Plus appropriation required for debt reduction	-	<u>+86,618</u>
Appropriation Request	<u>694,418</u>	<u>694,418</u>

Because of the application of these new budget concepts to "Family Housing, Defense", the movement from TOA to budget authority and appropriations is a much different matter here than for Defense appropriations in general.

For the "Homeowners Assistance Fund, Defense", budget authority is required to cover operating expenses, acquisition of property, and the assumption of mortgages. This budget authority includes a regular cash appropriation and authorization to spend agency debt receipts. The cash appropriation is requested in an amount sufficient to meet cash payments and to provide a prudent cash balance. The remainder of budget authority is called authorization to spend agency debt receipts, and does not require annual appropriation. The reason for this treatment is that there is no need to appropriate cash to cover the entire amount of mortgages, but only to cover payments to become due in the budget year. Cash appropriations are not requested to cover mortgages which will become due in the future.

FY 1970 financing adjustments for the "Homeowners Assistance Fund, Defense" include the unobligated balance carried forward to FY 1970 (\$12,045 thousand); reimbursements (\$450 thousand); and (as an add item), the unobligated balance available at the end of FY 1970 (\$3,068 thousand).

The third category of adjustments are those that relate to the new budget concepts, and do not affect the amount of appropriations requested. These are reflected in the lower part of Column (5) of Table 4, beginning with "TRUST FUNDS", and include the following:

	(\$ Millions)
MAP trust fund (contract authorization)	750,000
Military department trust funds (permanent authorization)	<u>7,429</u>
Gross, trust funds	757,429
Less applicable receipts from the public	-1,136,832
Less payment from "Navy Stock Fund" to "Ships Stores Profits, Navy"	<u>-7,200</u>
Net, concepts adjustments	<u><u>-386,603</u></u>

The trust funds are authorized by law to use their receipts, and annual specific appropriations are not required in the amounts indicated. The trust fund entries show the amounts of budget authority estimated to be realized for the trust funds.

Applicable receipts from the public include trust fund receipts and other collections (such as for services or sale of excess material) which are not credited to a regular appropriation of the DoD. These are netted out to portray more accurately the net budget impact of Defense programs.

Navy shipsstores are financed under the stock fund. The prices charged to customers include a markup to cover the cost of welfare and morale activities. Under the law, this amount (\$7.2 million estimated for FY 1970) is transferred to "Ships Stores Profits, Navy" to be used for the authorized activities. This item is netted out here, to avoid duplication.

In summary, the FY 1970 financing adjustments shown in Table 4 include the following:

	(\$ Millions)
(1) Adjustments which reduce appropriations	-2,442,463
(2) Family Housing (including Homeowners Assistance)	9,368
(3) Budget concepts	-386,603
Net (Column (6)), Table 4	<u>-2,819,698</u>

THE FISCAL YEAR 1970 FINANCIAL PLAN

As in the past, not all of the funds shown in the 1970 budget plan will be obligated during that year. The principal reason for this is that not all amounts associated with a given program need to be obligated in the program year. For example, certain components and spare parts for aircraft have a shorter leadtime than the airframe itself so obligation of such items can be deferred until the year following the contract for the airframe. In other cases, it is not feasible to bring an approved new program to the point of actually signing a contract, and hence creating an obligation in the same year in which the funds are appropriated. Similarly, in fiscal year 1970, we will be obligating some funds from the budget plans of prior years. The Department of Defense financial plan for fiscal year 1970, shown in Table 5, brings together the total resources available for obligation in that year and shows their planned applications.

Columns 2 and 3 of Table 5 show the unobligated balances carried forward into 1970. The total of Column 2, \$10 billion, is the unobligated balance available for completion of fiscal year 1969 and prior-year programs. The total of Column 3, \$935 million, is the unobligated balance available to finance fiscal year 1970 programs.

Column 4 of the financial plan is the total of Columns 2 and 3. Column 5 shows the amounts requested for appropriation for fiscal year 1970. These are the same amounts as shown in the last column of Table 4 for corresponding accounts, except for Family Housing, for which the differences have been explained.

Column 6 shows the transfers to various accounts from revolving funds in lieu of new appropriations, and the family housing debt changes, previously explained.

Column 7 shows the totals of reimbursable orders expected to be received in fiscal year 1970 from all sources. Column 8 is the total available for obligation in fiscal year 1970.

The next block of six columns (9 through 14) shows the planned use of these resources in fiscal year 1970; Column 9, the amounts to be obligated for service accounts; Column 10, the amounts to be obligated for customer orders; Column 11, total planned obligations; Column 12, amounts expected to be committed but unobligated on June 30, 1970, pending execution of contracts; Column 13, amounts planned to be allotted for which commitments are expected to be in process as of June 30, 1970; and Column 14, the total planned apportionment program, which includes the amounts planned for obligation, commitment, and allotment in fiscal year 1970.

Column 15 shows the amount reserved for obligation in future years for completion of fiscal year 1970 and prior-year programs. Column 16 shows the total unobligated balance planned to be carried over into fiscal year 1971 and is the total of Columns 12, 13, and 15.

COMPARISONS - 1968, 1969, 1970

Table 6 provides a running account of the unobligated balances, appropriations and obligations for the three fiscal years, 1968-70, including military assistance.

Table 7 provides a similar running account of the unexpended balances, appropriations, and expenditures for the same three fiscal years.

Table 1
 Department of Defense
 BUDGET SUMMARY - FY 1970
 (Millions of Dollars)

	FY 1968	FY 1969	FY 1970
Total Obligational Authority (TOA):			
Military Personnel	22,055	23,952	24,377
Operation and Maintenance	20,950	22,533	21,792
Subtotal - Operations	43,005	46,485	46,169
Procurement	23,610	23,949	23,128
Research, Development, Test & Evaluation	7,303	7,647	8,227
Military Construction	1,613	1,247	1,418
Family Housing	600	526	627
Civil Defense	86	61	75
Special Foreign Currency Program	-	11	4
Subtotal - Military Functions	76,216	79,926	79,649
Military Assistance	600	748	709
Total - TOA	76,816	80,674	80,358
Financing Adjustments	-69	-3,525	-2,433
Budget Concepts Adjustments	-345	-301	-387
Budget Authority (NOA)	76,402	76,848	77,539
Outlays	78,027	78,400	77,887

Note:

(1) FY 1969 TOA and NOA amounts include proposed supplemental appropriations as follows: Southeast Asia special support, \$1,496,900,000; military pay increase, \$904,200,000; civilian pay increase, \$198,900,000; wage board increases, \$84,600,000; retired pay cost of living increase, \$162,000,000; other supplementals under existing legislation relating to reservists and National Guard technicians, \$24,600,000.

Table 2
 Department of Defense
 BUDGET REVISIONS - FY 1969 and FY 1970
 (Millions of Dollars)

	FY 1969			FY 1970		
	Submitted Jan. 1969	Revisions	Current Request	Submitted Jan. 1969	Revisions	Current Request
Total Obligational Authority (TOA):						
Military Personnel	23,996	-44	23,952	24,384	-7	24,377
Operation and Maintenance	22,516	+17	22,533	21,941	-149	21,792
Subtotal - Operations	46,512	-27	46,485	46,325	-156	46,169
Procurement	24,455	-506	23,949	25,124	-1,996	23,128
Research, Develop., Test, & Eval.	7,647	-	7,647	8,179	+48	8,227
Military Construction	1,332	-85	1,247	1,951	-533	1,418
Family Housing	536	-10	526	634	-7	627
Civil Defense	61	-	61	75	-	75
Special Foreign Currency Program	11	-	11	4	-	4
Subtotal - Military Functions	80,554	-628	79,926	82,293	-2,644	79,649
Military Assistance	748	-	748	709	-	709
Total - TOA	81,302	-628	80,674	83,002	-2,644	80,358
Financing Adjustments	-4,003	+478	-3,525	-1,970	-460	-2,433
Budget Concept Adjustments	-301	-	-301	-387	-	-387
Budget Authority (NOA)	76,998	-150	76,848	80,645	-3,103	77,539
Outlays	78,400	-	78,400	79,000	-1,113	77,887

Table 3
Department of Defense
DIRECT BUDGET PLAN (TOA), BUDGET AUTHORITY (NOA), AND OUTLAYS
Fiscal Years 1968 - 1970

(Millions of Dollars)

Functional classification	Direct Budget Plan (TOA)			Budget authority (NOA)			Outlays		
	FY 1968	FY 1969	FY 1970	FY 1968	FY 1969	FY 1970	FY 1968	FY 1969	FY 1970
Military Personnel									
Active Forces	19,086	20,552	20,590	19,100	20,552	20,590	18,988	20,317	20,445
Reserve Forces	875	950	1,052	923	950	1,052	871	907	990
Retired Pay	2,093	2,450	2,735	2,095	2,450	2,735	2,095	2,441	2,720
Total - Military Personnel	22,055	23,952	24,377	22,118	23,952	24,377	21,954	23,665	24,156
Operation and Maintenance	20,950	22,533	21,792	20,950	22,533	21,792	20,578	22,106	21,706
Subtotal - Operations	43,005	46,485	46,169	43,068	46,485	46,169	42,532	45,771	45,861
Procurement	23,610	23,949	23,128	23,408	20,671	20,887	23,283	24,337	22,577
Research, Develop., Test, & Evaluation	7,303	7,647	8,227	7,285	7,579	8,222	7,747	7,545	7,813
Emergency Fund, Southeast Asia	-	-	-	56	-	-	-	-	-
Military Construction	1,613	1,247	1,418	1,543	1,168	1,310	1,281	1,508	1,258
Family Housing	600	526	627	612	515	612	495	630	618
Civil Defense	86	61	75	86	60	75	108	82	72
Special Foreign Currency Program	-	11	4	11	-	-	2	2	4
Working Capital Accounts	-	-	-	178	-	-	2,090	-1,947	-694
Military Assistance	600	748	709	500	671	650	601	548	591
Budget concept adjustments:									
Trust Funds	-	-	-	781	817	757	1,015	1,042	931
Intragovernmental transactions	-	-	-	-7	-7	-7	-7	-7	-7
Offsetting receipts	-	-	-	-1,119	-1,111	-1,137	-1,119	-1,111	-1,137
Total - Budget concept adjustments	-	-	-	-345	-301	-387	-111	-77	-213
Total - Department of Defense	76,816	80,674	80,358	76,402	76,848	77,539	78,027	78,400	77,887
Department or Agency									
Department of the Army	25,361	26,478	24,967	25,237	25,220	24,308	25,223	24,920	24,678
Department of the Navy	21,242	22,296	23,881	21,122	20,978	23,171	22,071	22,573	22,566
Department of the Air Force	25,287	26,349	25,437	25,196	25,353	24,330	25,734	25,933	25,042
Defense Agencies/OSD	4,241	4,743	5,289	4,450	4,734	5,246	4,237	4,282	5,000
Civil Defense	86	61	75	86	60	75	108	82	72
Total - Military Functions	76,216	79,926	79,649	76,091	76,345	77,131	77,373	77,790	77,358
Military Assistance	600	748	709	312	503	408	654	610	529
Total - Department of Defense	76,816	80,674	80,358	76,402	76,848	77,539	78,027	78,400	77,887

Notes:

(1) FY 1969 TOA and NOA amounts include proposed supplemental appropriations as follows:

Southeast Asia special support, \$1,496,900,000; military pay increase, \$904,200,000; civilian pay increase, \$195,900,000; wage board increases, \$84,600,000; retired pay cost of living increase, \$182,000,000; other supplementals under existing legislation relating to reservists and National Guard technicians, \$24,600,000.

Table 4

FINANCING OF FISCAL YEAR 1970 DIRECT BUDGET PLAN
 Revised to reflect FY 1970 Budget Amendment and
 Changes in FY 1969 Supplemental Request

(Thousands of Dollars)

	TOA (direct budget plan)	Financing Adjustments					Budget Authority
		Unobligated balance brought forward available for new programs (-)	Recoupments (Reprogramming from prior year budget plans)	Resources from reimbursable sales not requiring replacement (-)	Other financing adjustments	Total financing adjustments	
FEDERAL FUNDS							
Military Personnel							
Military Personnel, Army	8,551,700	-	-	-	-	-	8,551,700
Military Personnel, Navy	4,508,500	-	-	-	-	-	4,508,500
Military Personnel, Marine Corps	1,577,000	-	-	-	-	-	1,577,000
Military Personnel, Air Force	5,952,800	-	-	-	-	-	5,952,800
Reserve Personnel, Army	311,000	-	-	-	-	-	311,000
Reserve Personnel, Navy	140,400	-	-	-	-	-	140,400
Reserve Personnel, Marine Corps	45,700	-	-	-	-	-	45,700
Reserve Personnel, Air Force	88,200	-	-	-	-	-	88,200
National Guard Personnel, Army	363,500	-	-	-	-	-	363,500
Nat'l. Guard Personnel, Air Force	103,100	-	-	-	-	-	103,100
Retired Pay, Defense	2,735,000	-	-	-	-	-	2,735,000
TOTAL - Military Personnel	28,376,900	-	-	-	-	-	28,376,900
Operation and Maintenance							
Oper. and Maint., Army	7,504,500	-	-	-	-	-	7,504,500
Oper. and Maint., Navy	5,323,700	-	-	-	-	-	5,323,700
Oper. and Maint., Marine Corps	457,000	-	-	-	-	-	457,000
Oper. and Maint., Air Force	6,711,700	-	-	-	-	-	6,711,700
Oper. & Maint., Defense Agencies	1,095,000	-	-	-	-	-	1,095,000
Oper. & Maint., Army Nat'l Guard	306,000	-	-	-	-	-	306,000
Oper. & Maint., Air Nat'l Guard	342,534	-	-	-	-	-	342,534
Rifle Practice, Army	-	-	-	-	-	-	-
Claims, Defense	41,000	-	-	-	-	-	41,000
Contingencies, Defense	10,000	-	-	-	-	-	10,000
Court of Mil. Appeals, Defense	666	-	-	-	-	-	666
TOTAL - Operation & Maintenance	21,792,100	-	-	-	-	-	21,792,100
Procurement							
Proc. of Equip. & Missiles, Army	5,559,100	-15,000	-325,000	-100,000	-50,000	-490,000	5,069,100
Proc. of Aircraft & Missiles, N.	3,350,500	-	-75,000	-15,000	-25,000	-115,000	3,235,500
Shipbuilding & Conversion, Navy	2,781,650	-150,250	-	-	-	-150,250	2,631,400
Other Procurement, Navy	2,356,393	-123,693	-200,000	-10,000	-	-333,693	2,022,700
Procurement, Marine Corps	714,401	-38,801	-25,000	-	-	-63,801	680,600
Aircraft Procurement, Air Force	4,337,600	-87,400	-100,000	-50,000	-325,000	-562,400	3,775,200
Missile Procurement, Air Force	1,616,800	-103,400	-25,000	-	-	-130,400	1,486,400
Other Procurement, Air Force	2,310,293	-266,993	-100,000	-5,000	-	-371,993	1,938,300
Procurement, Defense Agencies	101,761	-24,161	-	-	-	-24,161	77,600
TOTAL - Procurement	23,126,498	-811,698	-850,000	-180,000	-400,000	-2,441,698	20,886,800
Research, Develop., Test & Eval.							
RD&E, Army	1,849,500	-	-	-	-	-	1,849,500
RD&E, Navy	2,211,500	-	-	-	-	-	2,211,500
RD&E, Air Force	3,566,200	-5,000	-	-	-	-5,000	3,561,200
RD&E, Defense Agencies	500,200	-	-	-	-	-	500,200
Emergency Fund, Defense	100,000	-	-	-	-	-	100,000
TOTAL - RD&E	8,227,400	-5,000	-	-	-	-5,000	8,222,400
Military Construction							
Military Construction, Army	496,426	-84,826	-	-16,000	-	-100,826	395,600
Military Construction, Navy	404,700	-7,500	-	-	-	-7,500	397,200
Military Construction, Air Force	369,100	-	-	-	-	-	369,100
Mil. Con., Defense Agencies	74,500	-	-	-	-	-	74,500
Mil. Con., Army Reserve	10,000	-	-	-	-	-	10,000
Mil. Con., Naval Reserve	9,600	-	-	-	-	-	9,600
Mil. Con., Air Force Reserve	5,300	-	-	-	-	-	5,300
Mil. Con., Army Nat'l. Guard	15,000	-	-	-	-	-	15,000
Mil. Con., Air Nat'l. Guard	13,200	-	-	-	-	-	13,200
TOTAL - Military Construction	1,417,826	-92,326	-	-16,000	-	-108,326	1,309,500

Table 4

FINANCING OF FISCAL YEAR 1970 DIRECT BUDGET PLAN
Revised to reflect FY 1970 Budget Amendment and
Changes in FY 1969 Supplemental Request

(Thousands of Dollars)

	TOA (direct budget plan)	Financing Adjustments					Budget Authority
		Unobligated balance brought forward available for new programs (-)	Repayments (Reprogramming from prior year budget plans)	Resources from reimbursable sales not requiring replacement (-)	Other financing adjustments	Total financing adjustments	
Family Housing							
Family Housing, Defense	613,644	-5,251	-	-6,893	6,300	-5,844	607,800
Homeowners Assistance, Defense	13,835	-12,045	-	-450	3,068	-9,427	84,408
TOTAL - Family Housing	627,479	-17,296	-	-7,343	9,368	-15,271	612,208
Civil Defense							
Oper. & Maint., Civil Defense	50,700	-	-	-	-	-	50,700
Res. Shelter Survey & Marking, CI	24,600	-	-	-	-	-	24,600
TOTAL - Civil Defense	75,300	-	-	-	-	-	75,300
Special Foreign Currency Program	3,840	-3,840	-	-	-	-3,840	-
SUBTOTAL - Military Functions	79,649,303	-930,120	-850,000	-203,343	-390,632	-2,374,095	77,275,208
Military Assistance							
Military Assistance, Executive	434,000	-5,001	-47,999	-6,000	-	-59,000	375,000
Foreign Mil. Credit Sales, Execo.	275,000	-	-	-	-	-	275,000
TOTAL - Military Assistance	709,000	-5,001	-47,999	-6,000	-	-59,000	650,000
TOTAL - FEDERAL FUNDS - DoD	80,358,303	-935,121	-897,999	-209,343	-390,632	-2,433,095	77,925,208
TRUST FUNDS							
Army Trust Funds	-	-	-	-	50	50	50
Navy Trust Funds	-	-	-	-	7,372	7,372	7,372
Air Force Trust Funds	-	-	-	-	7	7	7
SUBTOTAL - Military Functions	-	-	-	-	7,429	7,429	7,429
Military Assistance Trust Funds	-	-	-	-	750,000	750,000	750,000
TOTAL - TRUST FUNDS	-	-	-	-	757,429	757,429	757,429
ADJUSTMENTS							
Interfund Transactions							
Ships' Stores Profits, Navy	-	-	-	-	-7,200	-7,200	-7,200
Applicable Receipts from Public							
Applicable Receipts, Army	-	-	-	-	-67,505	-67,505	-67,505
Applicable Receipts, Navy	-	-	-	-	-39,625	-39,625	-39,625
Applicable Receipts, Air Force	-	-	-	-	-37,357	-37,357	-37,357
Appl. Receipts, Def. Agencies/OGD	-	-	-	-	-20	-20	-20
SUBTOTAL - Military Functions	-	-	-	-	-144,507	-144,507	-144,507
Applicable Receipts, MAP	-	-	-	-	-992,325	-992,325	-992,325
TOTAL - Applicable Receipts	-	-	-	-	-1,136,832	-1,136,832	-1,136,832
TOTAL - ADJUSTMENTS	-	-	-	-	-386,603	-386,603	-386,603
GRAND TOTAL - Department of Defense	80,358,303	-935,121	-897,999	-209,343	-777,235	-2,819,698	77,538,605

a/ Includes \$86,618 thousand applied to debt reduction.

b/ Reflects \$4,408 thousand of authority to spend agency debt receipts.

Table 3
Department of Defense
FINANCIAL PLAN FOR FY 1970
Obligation Plan
(Thousands of Dollars)

Appropriation title	Status of unobligated balance brought forward		Resources available for obligation					Planned appropriation program					Reserved for obligation in future years (Cols. 12 - 15)	Total unobligated balance available in subsequent year (Cols. 12 - 15)	
	Available for completion of prior year programs	Available to finance FY 1970 programs	Unobligated balance brought forward	Appropriation	Transfer and debt change	Authorization orders	Total available for oblig. (Cols. 4 - 7)	Planned obligations			Planned for fiscal year				Total planned appropriation program (Cols. 10 - 11)
								Direct oblig. for service support	Indirect oblig. for customer	Total (Col. 9 = 10)	Committed as of June 30 (Col. 10)	Decommitted (in process as of June 30) (Col. 11)			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
Military Personnel															
Military Personnel, Army	-	-	8,923,700	-	388,878	8,694,234	8,923,700	388,878	8,694,234	-	-	-	-	8,694,234	-
Military Personnel, Navy	-	-	4,948,500	-	38,378	4,948,878	4,948,500	38,378	4,948,878	-	-	-	-	4,948,878	-
Military Personnel, Marine Corps	-	-	1,577,000	-	88,600	1,599,600	1,577,000	88,600	1,599,600	-	-	-	-	1,599,600	-
Military Personnel, Air Force	-	-	5,999,800	-	37,790	5,999,990	5,999,800	37,790	5,999,990	-	-	-	-	5,999,990	-
Reserve Personnel, Army	-	-	333,000	-	1,000	333,000	333,000	1,000	333,000	-	-	-	-	333,000	-
Reserve Personnel, Navy	-	-	140,400	-	80	140,480	140,400	80	140,480	-	-	-	-	140,480	-
Reserve Personnel, Marine Corps	-	-	45,700	-	100	45,800	45,700	100	45,800	-	-	-	-	45,800	-
Reserve Personnel, Air Force	-	-	88,800	-	80	88,880	88,800	80	88,880	-	-	-	-	88,880	-
National Guard Personnel, Army	-	-	360,300	-	900	360,300	360,300	900	360,300	-	-	-	-	360,300	-
National Guard Personnel, Air Force	-	-	109,300	-	130	109,300	109,300	130	109,300	-	-	-	-	109,300	-
Retired Pay, Defense	-	-	8,725,000	-	-	8,725,000	8,725,000	-	8,725,000	-	-	-	-	8,725,000	-
SUB - Military Personnel	-	-	28,376,500	-	297,600	28,376,500	28,376,500	297,600	28,376,500	-	-	-	-	28,376,500	-
Operation and Maintenance															
Operation and Maintenance, Army	29,898	-	29,898	7,358,200	-	791,130	8,214,700	7,358,200	791,130	8,214,700	-	-	29,898	8,214,700	29,898
Operation and Maintenance, Navy	-	-	5,993,700	-	690,000	5,993,700	5,993,700	690,000	5,993,700	-	-	-	-	5,993,700	-
Operation and Maintenance, Marine Corps	-	-	197,000	-	88,800	197,000	197,000	88,800	197,000	-	-	-	-	197,000	-
Operation and Maintenance, Air Force	-	-	6,723,700	-	388,878	7,098,700	6,723,700	388,878	7,098,700	-	-	-	-	7,098,700	-
Operation and Maintenance, Defense Activities	-	-	1,099,000	-	52,490	1,131,000	1,099,000	52,490	1,131,000	-	-	-	-	1,131,000	-
Operation & Maintenance, Army Nat'l. Guard	-	-	396,000	-	3,800	399,800	396,000	3,800	399,800	-	-	-	-	399,800	-
Operation & Maintenance, Air Nat'l. Guard	-	-	348,298	-	6,000	354,298	348,298	6,000	354,298	-	-	-	-	354,298	-
Claims, Defense	-	-	-	-	41,000	41,000	-	-	41,000	-	-	-	-	41,000	-
Contingencies, Defense	-	-	30,000	-	-	30,000	30,000	-	30,000	-	-	-	-	30,000	-
Court of Military Appeals, Defense	-	-	666	-	-	666	-	-	666	-	-	-	-	666	-
TOTAL - Operation and Maintenance	29,898	-	29,898	21,798,500	-	1,988,833	23,732,300	21,798,500	1,988,833	23,732,300	-	-	29,898	23,732,300	29,898

Department of Defense
FINANCIAL PLAN FOR FY 1970
Obligation Plan
(Thousands of Dollars)

Appropriation title	Status of obligations		Resources available for obligation					Planned appropriations program					Reserve for obligations in future years	Total unobligated balance available in subsequent years (Cols. 12 + 13)
	Amount for program	Amount for program	Available for program	Appropriations	Transfers and other charges	Balance available (Col. 3 - 4 - 5)	Planned	Planned	Planned	Planned	Planned			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
MILITARY ASSISTANCE														
Family Housing, Defense (Direct Payment)	-	5,921	5,921	166,808	-	2,691	81,795	81,795	-	81,795	-	-	81,795	-
Family Housing, Defense (Construction)	70,128	-	70,128	121,733	-	189,897	129,600	129,600	-	129,600	6,400	97,977	129,600	12,977
Family Housing, Defense (C & R)	-	-	-	366,977	-	4,320	408,233	408,233	-	408,233	-	-	408,233	-
Guantanamo Assistance Fund, Defense	-	12,000	12,000	-	-	4,400	12,000	12,000	-	12,000	-	-	12,000	3,600
TOTAL - Family Housing	70,128	17,921	88,049	695,518	-	200,818	632,628	632,628	-	632,628	6,400	97,977	686,000	19,577
CIVIL DEFENSE														
Operation and Maintenance, Civil, Defense	-	-	-	20,700	-	120	20,820	20,820	120	20,820	-	-	20,820	-
Research, Monitor Survey and Warning, Civil, Defense	997	-	997	86,400	-	40	87,297	87,297	40	87,297	30	32	87,297	32
TOTAL - Civil Defense	997	-	997	107,100	-	160	108,117	108,117	160	108,117	30	32	108,117	32
OTHER														
Special Foreign Currency Program	5,380	5,380	5,380	-	-	-	5,380	5,380	-	5,380	-	-	5,380	-
MILITARY ASSISTANCE														
Military Assistance, Executive	-	5,000	5,000	373,000	-	4,000	382,000	382,000	-	382,000	-	-	382,000	5,000
Foreign Military Credit Sales	-	-	-	373,000	-	-	373,000	373,000	-	373,000	-	-	373,000	-
TOTAL - Military Assistance	-	5,000	5,000	746,000	-	4,000	755,000	755,000	-	755,000	-	-	755,000	5,000
TOTAL - Department of Defense	9,995,617	925,121	10,920,738	78,007,418	312,160	4,016,978	81,956,498	81,956,498	4,470,940	81,956,498	4,309,700	3,888,699	89,775,799	1,238,389
Summary by Component														
Department of the Army	2,893,476	99,886	2,993,362	24,375,500	20,000	1,999,800	26,423,668	26,423,668	1,324,124	26,423,668	1,077,840	1,373,124	26,988,036	8,451,688
Department of the Navy	3,940,524	389,884	4,330,408	23,210,800	25,000	1,912,307	25,122,915	25,122,915	1,878,840	25,122,915	1,747,970	1,623,880	26,799,895	1,123,240
Department of the Air Force	2,968,739	404,773	3,373,512	24,387,079	393,000	1,810,723	26,200,402	26,200,402	1,933,680	26,444,082	1,302,000	1,324,000	27,868,082	8,127,000
Defense Agencies/CDD	888,721	65,997	954,718	3,248,388	-	200	3,248,588	3,248,588	64,723	3,248,588	88,200	166,600	3,415,188	3,081,223
Civil Defense	-	-	-	75,300	-	160	75,460	75,460	160	75,460	30	32	75,460	32
TOTAL - Military Functions	9,995,617	925,121	10,920,738	78,007,418	312,160	4,016,978	81,956,498	81,956,498	4,470,940	81,956,498	4,309,700	3,888,699	89,775,799	1,238,389
Military Assistance	-	5,000	5,000	746,000	-	4,000	755,000	755,000	-	755,000	-	-	755,000	5,000
TOTAL - Department of Defense	9,995,617	925,121	10,920,738	78,007,418	312,160	4,016,978	81,956,498	81,956,498	4,470,940	81,956,498	4,309,700	3,888,699	89,775,799	1,238,389

1/ Includes portion of appropriation applied to debt reduction (8-6,510 thousands) and lapse of authorization to spend unexpended receipts (246,200 thousands).

2/ Reflects 10,000 thousand authority to spend agency debt receipts.

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Table 6
Department of Defense
PLANNED OBLIGATIONS AND UNOBLIGATED BALANCES
Fiscal Years 1968-1970

(Millions of Dollars)										
	Unobligated balance brought forward	Budget authority (MA)	Balances transferred	Reimburs- able orders	Total available for obligation	Direct obligations	Reimburs- able obligations	Write-off	Unobligated balance carried forward	Unobligated carryover as % of available
Fiscal Year 1968 - Actual										
Military Functions	-	-	-	-	-	-	-	-	-	-
Military Personnel	-	22,118	-	193	22,311	22,955	193	-64	-	-
Operation and Maintenance	61	20,950	11	2,013	23,035	20,950	2,040	-11	34	0.1
Procurement	11,175	23,402	87	2,911	37,561	24,033	2,848	-	10,701	28.5
Research, Develop., Test. & Evaluation	1,003	7,285	-	371	8,659	7,460	541	-	899	9.7
Emergency Fund, Southeast Asia	-	56	-	-	56	-	-	-	56	100.0
Military Construction	1,261	1,543	15	538	3,377	1,296	469	-	1,593	47.2
Family Housing	78	612	-	6	796	566	-	-3	228	28.6
Civil Defense	22	86	-	6	109	100	6	-	8	7.5
Special Foreign Currency Program	5	11	-	-	16	1	-	-	16	86.3
Total - Military Functions	13,725	76,069	113	6,234	96,141	76,459	6,111	-77	13,494	14.0
Military Assistance	12	500	-113	6	406	401	-	-	5	1.2
Total - Department of Defense	13,737	76,569	-	6,240	96,547	76,860	6,111	-77	13,499	14.0
Fiscal Year 1969 - Estimated										
Military Functions	-	-	-	-	-	-	-	-	-	-
Military Personnel	-	23,352	-	189	24,141	23,992	189	-	19	0.1
Operation and Maintenance	34	22,533	1	1,905	24,473	22,533	1,921	-	8,068	24.6
Procurement	10,701	20,671	1,576	3,140	35,087	24,166	3,053	-	701	8.6
Research, Develop., Test. & Evaluation	899	7,579	-	608	9,046	7,651	615	-	-	-
Emergency Fund, Southeast Asia	56	-	-56	-	-	-	-	-	-	-
Military Construction	1,593	1,168	10	792	3,569	1,574	762	-	1,172	33.2
Family Housing	228	515	-	23	765	575	-	-13	76	9.9
Civil Defense	8	60	1	6	69	68	6	-	1	1.4
Special Foreign Currency Program	16	-	-	-	16	6	-	-	9	56.3
Total - Military Functions	13,494	76,478	1,531	6,583	96,126	80,626	6,560	-13	10,927	11.1
Military Assistance	5	671	-	6	682	677	-	-	5	0.7
Total - Department of Defense	13,499	77,149	1,531	6,629	96,808	81,303	6,560	-13	10,932	11.1
Fiscal Year 1970 - Estimated										
Military Functions	-	-	-	-	-	-	-	-	-	-
Military Personnel	-	24,377	-	198	24,574	24,377	196	-	20	0.1
Operation and Maintenance	19	21,792	-	1,922	23,733	21,792	1,921	-	7,639	22.8
Procurement	8,560	20,687	400	3,252	33,407	22,684	3,052	-	790	8.2
Research, Develop., Test. & Evaluation	701	8,222	-	613	9,616	8,212	614	-	877	28.3
Military Construction	1,472	1,310	-	618	3,100	1,576	647	-	36	3.2
Family Housing	76	612	-	7	695	653	-	-6	6	0.5
Civil Defense	1	75	-	6	76	75	6	-	-	-
Special Foreign Currency Program	0	-	-	-	0	0	-	-	-	-
Total - Military Functions	10,927	77,275	400	6,610	95,211	79,319	6,473	-6	9,354	9.8
Military Assistance	5	650	-	6	661	656	-	-	5	0.8
Total - Department of Defense	10,932	77,925	400	6,616	95,872	80,035	6,473	-6	9,359	9.8

Note: Revolving fund transactions and budget concept adjustments are excluded since they have no impact on direct obligation for service account.

*Less than \$500 thousand.

Table 7
Department of Defense
ESTIMATED OUTLAYS AND UNEXPENDED BALANCES
Fiscal Years 1968-1970
(Millions of Dollars)

	Unexpended balance brought forward	Budget authority (MOA)	Unobl. balances trans- ferred	Total avail. for expend.	Outlays	Restora- tions and write- offs	Unexpended balance carried forward	Unexpend. carryover as % of avail.
<u>FY 1968 - Actual</u>								
Military Functions								
Military Personnel	935	22,118	-27	23,026	21,954	-206	867	3.8
Operation and Maintenance	2,737	20,950	16	23,703	20,578	38	3,163	13.3
Procurement	31,499	23,408	87	54,993	23,283	-	31,711	57.7
Research, Dev., Test, & Eval.	4,759	7,285	-	12,044	7,747	-	4,297	35.7
Emergency Fund, Southeast Asia	-	56	-	56	-	-	56	100.0
Military Construction	2,199	1,543	163	3,905	1,281	-	2,623	67.2
Family Housing	288	612	-	900	495	-4	401	44.6
Civil Defense	114	86	-	200	108	-4	89	44.3
Special Foreign Currency Prog.	7	11	-	19	2	-	17	90.7
Revolving funds	2,689	178	-	2,867	2,090	14	792	27.6
Budget concepts adjustments	26	-157	-	-131	-164	-	33	xx
Total - Military Functions	45,253	76,091	239	121,583	77,373	-161	44,049	36.2
Military Assistance								
Military Assistance gen. funds	1,359	500	-261	1,598	619	-	980	61.3
Revolving funds	329	-	-2	378	-18	-	396	104.7
Budget concepts adjustments	3,128	-188	-	2,940	53	-	2,886	28.2
Total - Military Assistance	4,816	312	-263	4,865	654	-	4,212	86.7
Total - Dept. of Defense	50,130	76,402	-24	126,508	78,027	-161	48,320	38.2
<u>FY 1969 - Estimated</u>								
Military Functions								
Military Personnel	867	23,952	-	24,819	23,665	-	1,154	4.6
Operation and Maintenance	3,163	22,533	8	25,704	22,106	-	3,598	14.0
Procurement	31,711	20,671	1,576	53,958	24,337	-	29,621	54.9
Research, Dev., Test, & Eval.	4,297	7,579	-	11,876	7,545	-	4,331	36.5
Emergency Fund, Southeast Asia	56	-	-56	-	-	-	-	-
Military Construction	2,623	1,168	10	3,801	1,508	-	2,293	60.3
Family Housing	401	515	-	916	630	-13	273	29.8
Civil Defense	89	60	1	150	82	-	68	45.3
Special Foreign Currency Prog.	17	-	-	17	2	-	15	88.2
Revolving funds	792	-	-1,531	-739	-1,947	-	1,208	xx
Budget concepts adjustments	33	-133	-	-100	-138	-	39	xx
Total - Military Functions	41,049	76,345	7	120,401	77,750	-13	42,598	35.4
Military Assistance								
Military Assistance gen. funds	980	671	-	1,651	551	-	1,100	66.6
Revolving funds	396	-	-	396	-2	-35	363	91.8
Budget concepts adjustments	2,896	-168	-	2,728	62	-	2,666	27.7
Total - Military Assistance	4,272	503	-	4,774	610	-35	4,130	86.5
Total - Dept. of Defense	48,320	76,848	7	125,175	78,400	-48	46,728	37.3
<u>FY 1970 - Estimated</u>								
Military Functions								
Military Personnel	1,154	24,377	-	25,531	24,156	-	1,375	5.4
Operation and Maintenance	3,598	21,792	-	25,390	21,706	-	3,684	14.5
Procurement	29,621	20,887	400	50,908	22,577	-	28,331	55.7
Research, Dev., Test, & Eval.	4,331	8,222	-	12,553	7,813	-	4,740	37.8
Military Construction	2,293	1,310	-	3,603	1,258	-	2,345	65.1
Family Housing	273	612	-	885	618	-6	261	29.5
Civil Defense	68	75	-	143	72	-	71	49.7
Special Foreign Currency Prog.	15	-	-	15	4	-	11	73.3
Revolving funds	1,208	-	-400	808	-694	-	1,501	185.8
Budget concepts adjustments	39	-144	-	-106	-150	-	44	xx
Total - Military Functions	42,598	77,131	-	119,728	77,358	-6	42,364	35.4
Military Assistance								
Military Assistance gen. funds	1,100	650	-	1,750	571	-	1,179	67.4
Revolving funds	363	-	-	363	20	-49	295	81.1
Budget concepts adjustments	2,666	-242	-	2,424	-62	-	2,486	102.6
Total - Military Assistance	4,130	408	-	4,537	529	-49	3,959	87.3
Total - Dept. of Defense	46,728	77,539	-	124,265	77,887	-55	46,324	37.3

DEFENSE INTELLIGENCE

Mr. WHITTEN. Thank you, Mr. Moot. We on this committee have some difficulty in keeping up with what all is included in the field of defense, the various grants and institutions. Many things are put in Defense because it would appear simpler to get them financed.

This committee, in going into Defense Intelligence this year and last year, has wondered how much of Defense is geared to present-day needs and how much of it is carryover from a policy that was established 12 or 15 years ago. A policy we have never found any way to stop.

I don't know that you had occasion to read the hearings in connection with Defense Intelligence, but investigation by this committee shows that at the time of the *Liberty* incident DIA had 517 linear feet of intelligence reports that had not even been analyzed. It took about 8 days for the information to be analyzed.

DIA told us the "hot" information was lifted off. I don't know how you can tell whether something is hot or not hot until you look at all of it.

GROSS NATIONAL PRODUCT

A lot of things have changed in the last 15 years. You have referred to gross national product. The Bureau of the Budget has indicated the more we spend and the greater the payments, the greater the GNP. In other words, the more you waste, the greater the GNP.

Briefly, what do you consider to be gross national product? What elements go into it?

Mr. MOOT. I think all of the production and all of the development, including the salaries and the construction, all of the income obviously goes into the gross national product. Insofar as your question relates to the Defense budget, economists I guess would say in general it is not a part of the productive economy in the sense that we provide for a national objective but we do not provide for something that is tangible in the sense that you can see it on the city streets.

Mr. WHITTEN. Other than the benefits that come from research and a few things like that, by and large it is just a necessary expense.

Mr. MOOT. It is an insurance type of expense, that is right, sir. That doesn't mean we don't think it is important and we believe that the portion of the gross national product is one measure of the defense program as it relates to overall priorities. We believe, of course, the smaller that proportion can be and still provide for adequate national security, the better off the country will be because resources can then be put into other programs, or taxes can be reduced.

Mr. WHITTEN. What you have said could mean that we are spending more and more and more in these other areas and it is a comparison as you describe it.

Mr. MOOT. The Defense portion of GNP can be viewed completely aside from other programs. In other words, it has no relationship to the size of the other programs in the Federal budget. What I was talking about was the total private sector as well as the public sector.

In other words, there are two ways. You can increase taxes or decrease taxes as requirement for national defense goes down. The increased taxes go into other programs, decreased taxes go into private spending.

Our programs should be viewed against the basic requirement, which is what is necessary to meet our overall national security objective.

Mr. WHITTEN. The Government has a loose definition of gross national product. Any time you spend something or give it away, it is a part of the gross national product. The greater the inflation, the greater the gross national product.

I don't approve of that type measurement too much. It may mean that you have held your expenditures within reason and we have gone overboard with a lot of other things.

SIZE OF DEFENSE BUDGET

Before we get into a detailed question period, I would like to have a little overall philosophical discussion with you concerning the premise upon which the Department of Defense reached the conclusion that an increase of \$5 billion for non-Southeast Asia operations is justified in the light of current events, such as the growing Federal deficit, high taxes, inflation and so forth.

I think everyone in Congress last year was agreed that something had to be done.

In view of the threat to the economy and the threat of inflation, they passed the Revenue and Expenditure Control Act directing the whole Government to cut back not less than \$6 billion and in new obligational authority by not less than \$10 billion from the preceding year.

Now, we all recognize that in Southeast Asia you just cannot afford to go all out, but here you bring us a budget that calls for a \$5 billion increase in expenditures in non-Southeast Asia areas. Just how do you go about justifying that? Are you inviting Congress to pass another Revenue and Expenditure Control Act?

Mr. MOOR. I appreciate the chance to answer that. I think it gets to the root of the means by which we determine the size of the military budget. As you know, our budget is fundamentally a result of decisions made outside the Department of Defense.

Our job is mainly national security and national security is dependent largely upon the commitments that are made in the international field.

When we start to develop a budget in the Department of Defense, the very first step is an evaluation of the international threat as related to the national interests and the international commitments.

The forces and the bases we have in CONUS and overseas, and in our military assistance program are all determined carefully after an assessment by the National Security Council, by the Joint Chiefs of Staff, by the President, in connection with and in the context of all of his other economic priorities and a determination of the calculated risks that he will accept in terms of national security and the requirements of the international commitments.

THREAT EVALUATION

Mr. WHITTEN. Mr. Secretary, this might be somewhat facetious but picking you up at that stage of your statement, it could mean the threat is \$5 billion greater next year than it was last year.

Mr. MOOR. Mr. Chairman, yours is a good, solid question. The threat, as it is evaluated each year, is not for 1 year, of course, as you

realize, but it is for several years into the future. It stretches over a 5 to an 8-year time frame and the increase in the budget, as you are looking at it for 1970, in non-Southeast Asia areas, represents programs which will result in weapons to enter our inventory several years hence, from 3 to 8 years hence in the inventory, and represents the threat and the military requirement as envisaged in that time frame.

Now, it is a fairly significant increase, but you will recall that the total budget has gone down and you will recall, Mr. Chairman, that the 1969 budget with which I am comparing it also was reduced by \$3 billion of that \$6 billion cut required by the Revenue and Expenditure Control Act, so that the general budget trend has been and is down from past years.

As you properly mentioned, inflation plays a good part in any evaluation of our budget. In terms of the total budget as you are looking at it for 1970, with the increase that you mentioned, that budget for non-Southeast Asia is some 15 percent lower than the 1964 budget, in constant dollars. Instead of going up \$5 billion, our budget is down by about \$8 billion in non-Southeast Asia comparative figures for 1964 dollars from prewar to 1970.

FULL FUNDING CONCEPT

Mr. WHITTEN. There are a number of things that I, as an individual, have lived with through the years. One thing I have always questioned is full funding. I have always thought it was an argument between two of our distinguished colleagues about how much money you spent every year and this was the only way they could arrive at it.

However, having served on this committee back in World War II when even the military people were afraid we would go broke we cut back on contracts and the like where they were not needed.

Of course, we would like to have you have the money in hand when you can go into a contract. The contractor needs to know that he will get his money.

When you have the money, it lessens the chances that the contractor might have his contract canceled.

The other great danger that I see here, and that which leads to waste is, as long as you have full funding, a big part of our time on this committee is taken up in reprogramming. That is where the military gets appropriations for some high-priority project and then later, when we don't spend it for that high-priority project, you come in here and get some second-rate approval on some second-rate expenditure and say, "Well, it won't cost anything. We already have the money."

That has become a regular practice. I think to a great degree it is because of full funding. You can say, "Well, you know it doesn't cost you anything extra and there won't be any newspaper publicity about it."

These are the things that trouble me as an individual.

Now, having raised those points, I wish you would touch on what you have in mind in your statement in connection with this full funding.

Mr. MOOT. I appreciate the chance, Mr. Chairman. I think perhaps the best way for me to start on full funding is my defining it as this committee defined it for us when this committee instituted full

funding in the Defense Department back in 1958. The simplest way for me to think about it is this: Any time we request a procurement item from this committee in an annual budget, this committee has insisted that the full amount of the cost of those items, whatever the quantity is, be included in the budget. If it is 10 items for \$100,000 a piece, this committee has said no matter when you are going to pay for those 10 items, if you are going to contract for them or buy them this year, we want to see 10 times \$100,000 or \$1 million. We want to see the full amount of that.

The reason the committee asked for this policy was that they found an instance back 10 years or more when there was perhaps only, in my illustration, only \$200,000 or \$300,000 and 10 of the items were bought with just the incremental piece being provided, of the costs that were going to be incurred in that year and the next year the Congress saw a contract already well underway for 10 of the items for an additional cost which the Congress had not reviewed.

This basically was the reason for full funding. What we therefore do is to tell this committee the full amount to the best of our ability, and this does not always become very perfect, of the procurement cost for the quantity and the item we intend to buy. The second point you raised was that of reprogramming. In our opinion, Mr. Chairman, reprogramming constitutes a form of control by this committee over our actions, because in that same illustration if we wanted to change the quantity or increase the quantity or change the price of those 10 items, and that million dollars worth of procurement, it would be necessary for us to come to this committee and say certain things have changed, we want to increase this to 15 at a million and a half, and to get the half a million dollars we propose to reduce this other item. This means you are constantly looking with us and in control with us over changes in our budget from that which you reviewed.

Mr. WHITTEN. I would like to say with full funding it is absolutely imperative that we have reprogramming if we are to retain control. I think that is essential. My purpose is not to drag up old issues because I said I have been outvoted in my viewpoint on this, but since you go into your dealing with the GAO in connection with full funding I wanted you to clarify a little bit where you are and what this really means.

Mr. MOOT. Yes, sir. I appreciate the opportunity. I think it is fair to say that the GAO, that full funding is a good concept in their understanding of this committee's desires and I think their recommendations for improvement were good and we are adopting them as I mentioned in my statement.

PROJECT LITE

Mr. WHITTEN. How can you justify an increase, for instance, in operation and maintenance of \$277 million which includes funds for such items as updating the computer system for the LITE program from a second to third generation computer and inserting in the rental contract the requirement that the contractor provide office space for the LITE staff?

Mr. MOOT. I am going to ask General Carter who handles ADP management to answer.

General CARTER. Sir, one reason we are putting some of our older systems on new computers is that the third generation models that

are now available today basically will do the job more cheaply than the computers we have been using.

In the specific case of the LITE system, we have asked the Air Force to determine whether any of their existing third generation programs for handling full text will do the LITE job. If not, the old LITE system will be reprogramed. We see the advantages of third generation equipment, but we want to avoid duplicating programing work already done.

With respect to office space, it is my understanding that the LITE project is being moved from where it is now to a different location because of the need of the space that had been occupied, for other purpose. The movement is a coincidental effect of a general need for more office space.

POSSIBILITY OF DEFERRING SOME PROGRAMS

Mr. WHITTEN. We note that under the procurement increase of \$3,130,000 there is an amount of \$277 million for new ground equipment for the Army and the Marine Corps including tracked combat vehicles, weapons, and the production base support. Would you not think that we had sufficient tracked vehicles available at the present time that the request for these funds could be deferred for the time being?

Mr. MOOR. They could be deferred. The Army's justification which was accepted but after careful review through the OSD and the Bureau of the Budget is that they had been deferred for a considerable period of time during the Vietnam situation and in order to update our Army units, this was a necessity. It was accepted on the basis of that justification.

Mr. WHITTEN. Why do you believe the Department needs an increase of \$701 million in R.D.T. & E. funding which includes funds for such programs as the Mallard communication system? Do you not believe that we could defer programs such as this until sometime in the future? In other words, all these projects are needed now. All we have to do is read the daily paper, see the present dangers of the financial situation.

Mr. MOOR. Yes. I think probably the best answer to that particular and specific question would be from Dr. Foster. Mallard, as you know, is a joint tactical communication capability program for the United Kingdom, Canada, Australia, and the United States. It has been in process for some time, and requires a proper level of funding if it is going to be completed in the presently planned time frame. If you would like, I would be glad to put into the record at this time a statement by Dr. Foster concerning this program.

Mr. WHITTEN. It is my recollection that we went into this matter with Dr. Foster to some degree, so if you will put in the record a reference in case he has already testified, where his statement would be found.

Mr. MOOR. I certainly will, sir.
(The information follows:)

This matter is covered in the hearings before the Defense Subcommittee of the Committee on Appropriations, 90th Congress, second session, part 2, research, development, test, and evaluation, page 497.

BUDGET REVIEW PROCESS

Mr. WHITTEN. Testimony before the committee so far indicates that the budget was rather loosely put together. We recognize that with the change in the administration on the 20th of January these things could occur. Would you explain for the record what procedures your office uses to review and scrutinize the budget to determine that only necessary requirements are funded and all unessential items are deleted from the budget request of the services. How did you go about reworking the original budget?

Mr. MOOR. I would like to answer that and then ask Mr. Brazier, who is our budget officer, if he has anything to add. I have been in this job since last August which is 10½ months. Since the day I came on board we have been reviewing what in essence is now the 1970 budget you started with.

As you will recall, Public Law 90-364, the Revenue and Expenditure Control Act, was then in existence as we came in and we were starting to review, to cut back military programs in order to make the cuts of \$3 billion and \$5 billion you referred to earlier. This was the base for the 1970 budget. So when we had the military departments submit their budget in October 1968, they were submitting it against a known reduced 1969 base. So increases showed up very sharply and were very carefully reviewed. The budget did go through a very careful review during that period of October through December, together with the Bureau of the Budget, we in OSD and all the functional managers, examining it very carefully.

When it was finally submitted to the Congress as a \$79 billion outlay budget we felt it was a fairly tight budget. Since that time, Secretary Laird and Deputy Secretary Packard have had a continuous review and we are still reviewing the budget. It has been a fairly intensive review. We have had all of the experts in the Department review the programs one after the other. Obviously in comprehensive depth we will still need to examine the programs further before Secretary Packard will be satisfied that he has looked at them all. We have reduced, as this committee knows, over \$3 billion in obligational authority and \$1.1 billion in outlays since Secretary Laird and Secretary Packard have started this review. Not included in those figures are additional reductions that they have made such as the Cheyenne cutback, the MOL cutback and certain other aircraft such as the A-6A procurement cutback. These reductions have been made and will be made continuously as they revise and review the budget. I think we have had a year of very intensive review, crystalizing in the last 4 to 5 months, which has been at a very high level. Mr. Brazier, do you have anything to add?

Mr. BRAZIER. I think you have covered it. The only thing we might add to get a perspective is that as a result of these reviews the budget as now constructed is some \$20 billion less than the services requested last October. So it has been screened.

REDUCTION IN SOUTHEAST ASIA FUNDS

Mr. WHITTEN. Table 3 shows your current estimated total obligational authority for Southeast Asia at \$22,095 million for fiscal year 1970. This is a reduction of \$5,385,000,000 below the current estimate

for 1969, and is also a reduction of \$931 million below the original estimate submitted in January, for 1970. In your opinion, are there sufficient funds in this request to support operations in Southeast Asia during 1970.

Mr. MOOT. Yes, sir. I might add, Mr. Chairman, that along with \$22,095 million of authority there will be \$24,900 million of outlays or expenditures. This simply results from the fact that we are cutting back new procurement while the production from the older procurement is still coming in. So we are looking forward, even though munitions and aircraft are still coming off the production lines more than ample to meet our current requirements, we are looking forward to a lessening of requirements. It is the procurement for the future that reduces our requirement and that is the reason for the reduction in the obligational authority.

Mr. WHITTEN. Are you sufficiently sure of the viewpoint you have expressed to the point you feel you will not be running into supplemental requests.

Mr. MOOT. We certainly have no plans for a supplemental request and no intent, Mr. Chairman. I would like, however, to state again that the military budget in my opinion is a function of the requirements and the commitments, emergency and otherwise, and while the situation would have to change significantly for us to require a supplemental it is not beyond the possibilities, as happened in the past.

Mr. WHITTEN. In other words, your request is not predicated on such an intention?

Mr. MOOT. It is not predicated on any such intention.

Mr. MINSHALL. Mr. Chairman.

Mr. WHITTEN. Mr. Minshall.

REVIEW OF ONGOING PROGRAMS

Mr. MINSHALL. Mr. Secretary, you said a few moments ago that you were having an intensive review of all of these defense programs, especially within the last 4 or 5 months. How far back does this review go? Contracts that were originally instigated or contracted for when? Do you follow my point?

Mr. MOOT. Yes, sir.

Mr. MINSHALL. When were these contracts originally made?

Mr. MOOT. All of our major systems, Congressman, as you know, have ongoing followon procurement. For that reason we are reviewing all current systems where production is currently going on.

As Secretary Laird has announced, at the moment this involves some 32 major systems, and we are adding to them as we are continuing the review.

Mr. MINSHALL. Yes, but these ongoing programs that you speak of were originally contracted for when?

Mr. MOOT. None of the systems we are currently reviewing has been contracted for since the beginning of this calendar year. They are all systems that were contracted for prior to and approved prior to—

Mr. MINSHALL. Over what period of years? Prior to what?

Mr. MOOT. Prior to 1 January, 1969, and back over several years.

Mr. MINSHALL. By several years you mean going back to 1965? During the Johnson-McNamara regime?

Mr. MOOT. Yes, sir. I should stretch that 1 January to about 31 January because there were two programs as I recall approved in the January 1 to January 20 time frame. Let me be a little more specific. The programs we are currently reviewing are all prior administration approved programs. This administration has not yet approved any significantly major programs.

Mr. MINSHALL. Thank you very much.

SUPPLEMENTAL REQUEST, 1970

Mr. LIPSCOMB. Mr. Moot, I believe you indicated to the chairman that at this time you did not anticipate any necessity for any supplemental for fiscal year 1970.

Mr. MOOT. I was saying that our budget did not contemplate the need for a supplemental nor was it our intent to plan on a supplemental, that is right; sir.

Mr. LIPSCOMB. We have had testimony before the committee over the last several months, for instance, where if the Vietnam situation maintains its present level, ammunition will be extremely short because of the reduction in ammunition in this fiscal year 1970 budget. We already know that there is going to be a supplemental necessary for DOD on pay increases. So I think the record should show that perhaps we have to anticipate a supplemental for fiscal 1970 at this time.

Mr. MOOT. You are absolutely right, sir. You are right without question in the sense that I was construing the President's submission of the pay raise as a part of his \$192.9 billion and as a part of the overall budget which my statement, as I indicated allocates to us \$2.1 billion. But there will be a need for a supplemental in order for us to have those funds. Insofar as Southeast Asia is concerned, if there is a continuation of the air munitions at the current rate of consumption, including 1,800 B-52 sorties versus the budget plan for 1,600 B-52 sorties, it is true we may need a supplemental. The budget contemplates that the 1,800 level of B-52 sorties will drop to an average of 1,600 during fiscal year 1970. For that sortie rate, a supplemental will not be required. My answer to the chairman was that we cannot foresee the requirements, or emergency situation, as it might unfold during fiscal year 1970. Therefore, our budget is not predicated upon such a need. I would be the last one to say it could not happen. It has happened in the past.

Our ground munitions on the other hand, are generally approaching the level, and they have over the past few months, of our budget forecast. So our inventory of ground munitions should be sufficient, unless there is escalation rather than maintenance of the current level, to carry us through the funded period for fiscal 1970. Aircraft attrition, again, is in the same position as air munitions. If aircraft attrition increases, or if helicopter damage, operational or otherwise, occurs at a fairly high level, we will have additional requirements. Our budget assumes there will be a lessening of activity along these lines.

ADEQUACY OF BUDGET ESTIMATE FOR SOUTHEAST ASIA

Mr. LIPSCOMB. I must say that I personally feel that the \$24.9 billion in outlays scheduled in the statement looks very optimistic to me at this point. The budget is based upon actions and projections made 6 months ago, I would guess, and there have been things that

have happened in the last 6 months that even now throw the projections out of balance. For example, there was the tremendous loss in ammunition at Danang.

Mr. MOOR. Could I give you an example and maybe it might put our discussion in perspective. Taking air munitions, which as you know is a considerable part of our budget requirement, our monthly consumption of air munitions over the past few months has been 132,000 tons in January, 117,000 tons in February, 132,000 tons in March, 125,000 tons in April. Our production, as it is scheduled through June 1970, is 125,000 tons per month. This leads me to believe that we have sufficient for the current level with one basic modification. Our funded leadtime beyond June 1970, which is about 6 months, is on a minimum sustaining rate, as our budgets have been predicated. That minimum sustaining rate allows us to respond if the activity increases, and is at a 50,000-ton rate. This is where we have made a significant budget assumption, but it is certainly an assumption that has been confirmed by the Secretary, is not questioned in terms of general logic and acceptance as we are looking at it now. I feel there is no known deficiency at this time in our budget as we are looking at it. I gave you the worst situation because ground munitions—we do not have that sharp drop in our funded leadtime because of the need to reconstitute inventories.

Mr. LIPSCOMB. I think the record will show from the testimony we have received from the services that they are not as optimistic on the projected programming for Southeast Asia.

Mr. MOOT. I would hasten to say that what I am saying is based on a budget assumption that the level of activity will be at the height which we have experienced in recent months, well below the levels of the January—Tet—May and August offensives of last year. It is on that low that our budget is predicated. Any change from that would require more resources.

Mr. LIPSCOMB. Actually the budget is projected on the rate back in November of last year.

Mr. MOOT. But it has been updated to the January—February time frame.

Mr. LIPSCOMB. It has?

Mr. MOOT. Yes, in the revisions we are currently looking at. In other words, we have looked through the latest we could at that time and it was about January. There was not sufficient change in the rate of consumption for us to change the budget assumption. Again it is true that in March for example, we had a very high rate, 132,000 tons of air munitions consumption. That kind of consumption will require additional resources.

Mr. MINSHALL. What do you have in the way of reserves for these air munitions?

Mr. MOOT. Our air munition inventory if I may correct this for the record, will be about _____ tons in June 1970.

Mr. MINSHALL. You refer to that as your reserves?

Mr. MOOT. We refer to that as our working inventory. Our reserve is really a hot production base because as you know, we are turning out 125,000 tons per month and could turn out more. This will be the asset from which we will reconstitute any drawdown of inventories we might need.

Mr. WHITTEN. Mr. Secretary, I think this has been developed rather fully. My question was in no way tricky. We all know in wartime you cannot exactly tell. The question was directed to whether or not in projecting a rather reasonable figure here you might say you are holding back something that you knew you had to do. The chairman was well aware of the pay increase and other things which are part of the present day budget although not before us at this time.

VIETNAM TROOP WITHDRAWALS

Has any allowance been made of the 25,000 troops which are being withdrawn from Vietnam? Does that have any effect on your budget or was it taken into consideration, or if that is followed up by further withdrawals, will it change the budget in any way that you can foresee?

Mr. MOOR. The 1970 budget as you are looking at it does not take into consideration any withdrawals that will be made. It assumes the same force level in Southeast Asia that was planned. We have not yet been able from a budget viewpoint to get a definitive enough redeployment location and basic impact of the 25,000 troop change yet to price it. We hope it will result in some reduction, but this is not yet known.

REDUCTIONS TO 1970 DOD BUDGET

Mr. SLACK. Mr. Secretary, did I understand you correctly a while ago to state that the Bureau of the Budget cut this request by \$20 billion.

Mr. BRAZIER. No, sir; the original service estimates for fiscal year 1970 budget totaled about \$100 billion. Our current request is around \$80 billion. This reduction has been made as a result of the Joint Office of Secretary of Defense-Bureau of the Budget reviews which began last October and have continued since.

Mr. SLACK. Did you mention a \$20 billion cut?

Mr. BRAZIER. Yes, sir.

Mr. SLACK. How much was the figure cut by the Secretary from the services before it went to the Bureau of the Budget?

Mr. BRAZIER. As you probably know, in the Defense Department we have a joint Bureau of the Budget-Office of the Secretary of Defense review, so there is no specific number that could be identified that would differentiate between the reductions made by the Secretary of Defense and the reductions made by the Bureau of the Budget.

Mr. SLACK. In other words, as I understand from the staff this is not submitted to the Bureau of the Budget and then they make a decision after the Secretary had made a decision. You are working in conjunction with the Department of Defense and the Bureau of the Budget.

Mr. MOOR. That is right. The President makes the final decision but he makes it in conjunction with the Secretary of Defense after he considers the Bureau of the Budget recommendation.

Mr. SLACK. That answers my question. Thank you.

Mr. WHITTEN. Not that I need this, but I understood you to say that this reduction was in the sums requested by the various services. It is a compilation of what everybody wants, usually.

Mr. BRAZIER. Yes. Reductions of this general magnitude have been made over the last 5 or 6 years.

SOUTHEAST ASIA EXPENDITURES

Mr. WHITTEN. What is your current estimate as to the actual expenditures for Southeast Asia in fiscal 1969 and 1970?

Mr. MOOT. We expect that fiscal year 1969, the expenditures for Southeast Asia will be \$28.8 billion and for fiscal year 1970 will be \$24.9 billion.

Mr. WHITTEN. Will you insert in the record a statement and the accompanying schedules similar to those appearing on pages 462 and 463 of part 1 of last year's hearings having to do with the Southeast Asia costs?

(The information follows:)

Cost of Southeast Asia Conflict

General Comments

1. There are two general approaches to describing the cost of the Southeast Asia conflict, the incremental cost approach and the full, or prorated, cost approach.
2. Incremental costs are the Southeast Asia-related costs over and above the normal costs of the Defense Establishment. These "normal" costs are assumed to be the annual costs as they existed at the end of fiscal year 1965, adjusted for any known changes in activity not related to Southeast Asia. For making management decisions within the Defense Department, estimating the impact of the Southeast Asia conflict on our economy, and estimating our resource requirements for the Southeast Asia conflict, the relevant consideration is the estimate of the incremental costs associated with Southeast Asia.
3. The full, or prorated, cost of the Southeast Asia conflict to the Defense Department includes a proration of the normal cost of the Defense Establishment. This estimate is not used for any management purpose and is included here only because it has been requested.
4. Estimates of prorated costs for a given period can vary over a wide range depending upon the assumptions used to make the proration. The two methods shown below, for example, which are equally defensible, produce estimates which are \$1.9 billion apart. Any number of different figures could be computed simply by using other methods.

Incremental Costs

Approach

1. To estimate military personnel costs, we first estimated the military personnel strength which was associated with Southeast Asia by taking the difference between the total personnel strength in a year and the strength for fiscal year 1965, adjusted for changes in strength not associated with Southeast Asia. The strength figure was then multiplied by the worldwide average cost per man, and to this was added special Southeast Asia cost items, such as hostile fire pay.
2. We estimated other operating costs by assuming that annual operations and maintenance total obligational authority above the fiscal year 1965 base, adjusted for known changes and pure financial changes, was equal to such costs.
3. For ammunition, we assumed that consumption costs were the current replacement cost of actual/planned consumption. The cost of aircraft and helicopter attrition was estimated by multiplying actual/estimated losses by original costs. We estimated equipment and spares by assuming that the net of all new equipment and spares delivered, plus inventory drawdowns, less increases of equipment in use, was used to replace Southeast Asia-related losses and was the cost for the year.

ESTIMATE

(In billions of dollars)

	Fiscal Year				1970
	1966	1967	1968	1969	
Military personnel costs	1.6	4.4	5.5	5.9	5.8
Other Operating costs	<u>3.0</u>	<u>6.6</u>	<u>7.3</u>	<u>8.1</u>	<u>7.2</u>
Subtotal, operations	4.6	11.0	12.8	14.0	13.0
Ammunition consumption	2.0	3.7	5.8	6.9	5.9
Aircraft and helicopter attrition	.9	1.2	1.7	1.2	1.3
Equipment and spares consumption	1.2	2.4	3.1	3.5	3.0
Construction	.6	.9	.8	.5	.2
Research and development	<u>.1</u>	<u>.2</u>	<u>.6</u>	<u>.6</u>	<u>.4</u>
Total, incremental costs	9.4	19.4	24.8	26.7	23.8

Reconciliation of current estimate of fiscal year 1969 incremental costs
with estimate furnished in the testimony on the fiscal year 1969 budget

(In billions of dollars)

Fiscal year 1969 Southeast Asia incremental costs, per fiscal year
1969 budget testimony 25.2

Differences:

1. Military personnel costs:	
Pay raise	+0.2
Other differences	<u>-0.1</u>
Total increase, military personnel costs	+0.1
2. Other operating costs:	
Price increases	+0.3
Pay raise	+0.1
Other differences, net	<u>-0.2</u>
Total increase, other operating cost	<u>+0.2</u>
3. Ammunition consumption: Net increase in consumption	+1.1
4. Aircraft & Helicopter attrition: Net reduction	-0.6
5. Equipment & spares consumption: Net increase	+0.1
6. Construction: Net increase	+0.2
7. Research and development: Revised estimate of requirements	+0.4

Total difference	<u>+1.5</u>
Fiscal year 1969 Southeast Asia incremental costs, current estimate	<u>26.7</u>

Prorated Costs

Two of the many possible ways of estimating prorated costs are given below.

Method A: Estimate of prorated cost from Defense appropriation data assumptions:

1. Operating costs not directly identified with Southeast Asia conflict are prorated in proportion to military strength to estimate the full, or prorated, operating cost of the Southeast Asia conflict. For fiscal year 1970, we estimate that the Southeast Asia-related average military strength is approximately 840,000 or 24.2% of the worldwide average military strength of 3,466,000.

2. Total worldwide operating costs are equal to new obligational authority (military personnel and operations and maintenance appropriations) for the year.

3. All other costs (ammunition consumption, aircraft attrition, construction, etc.) directly identified with Southeast Asia conflict are equal to full cost without any proration.

Estimate, Fiscal Year 1970

(In billions of dollars)

	Total NOA	SEA direct	Other (Col. 1 minus 2 equals col. 3)	SEA pro- ration (24.2 percent col. 3 equals col.4)	Total, SEA (Col.2 plus col. 4 equals col.5)
	(1)	(2)	(3)	(4)	(5)
Military personnel, Active Forces	21.6	5.8	15.8	3.8	9.6
Operations and maintenance	<u>21.8</u>	<u>7.2</u>	<u>14.6</u>	<u>3.5</u>	<u>10.7</u>
Total operations	43.4	13.0	30.4	7.3	20.3

4

	(1)	(2)	(3)	(4)	(5)
Ammunition consumption		5.9			5.9
Aircraft and helicopter attrition		1.3			1.3
Equipment and spares consumption		3.0			3.0
Construction		.2			.2
Research and development		<u>.4</u>			<u>.4</u>
Total		23.8			31.1

Method B: Estimate of Prorated Cost from Defense Budget Program Data Estimate,
Fiscal Year 1970

(In billions of dollars)

	TOA	SEA direct	Other direct	Common (col.4 equals col. 1 minus col. 2 plus col.3)	SEA pro- ration ¹ (col.5 equals f times col.4)	Total, SEA (col.6 equals col.2 plus col.4)
	(1)	(2)	(3)	(4)	(5)	(6)
1. Strategic Forces	8.0	0.6	7.4			0.6
2. General Purpose Forces Operations ² Procurement	30.9	12.9 (3.9) (9.0)		18.0	4.4	17.3
3. Intelligence and communi- cations	6.1			6.1	1.5	1.5
4. Airlift and sealift	2.1			2.1	.7	.7
5. Guard and Reserve Forces	2.9		2.9			
6. Research and development	5.6	.4	5.2			.4
7. Central supply and maintenance	9.6			9.6	4.0	4.0
8. Training, medical, etc.	10.5			10.5	2.5	2.5
9. Administration and associ- ated activities	1.5			1.5	.4	.4
10. Military assistance program	<u>3.2</u>	<u>1.8</u>	<u>1.4</u>	<u> </u>	<u> </u>	<u>1.8</u>
Total	80.4	15.7	16.9	47.8	13.5	29.2

¹ Factors (f) are as follows:

$$\text{General purposes} = \frac{\text{SEA-related military strength}}{\text{Total military strength}} = 0.242.$$

Intelligence and communications = same as General Purpose = 0.242.

Airlift and sealift = $\frac{1}{2} \frac{(\text{SEA strength} + \text{SEA procurement})}{(\text{Total strength Total procurement})} = 0.331.$

Central supply and maintenance = $\frac{\text{SEA procurement}}{\text{Total procurement}} = .420.$

Training, medical, etc. = same as General Purpose = 0.242.

Administration and associated activities = same as General Purpose = 0.242.

² SEA direct operating costs are estimated as follows: Assume that the SEA proration for programs 3, 4, 7, 8, and 9 is essentially pure operating costs. Then, to estimate SEA direct operating costs, General Purpose Forces, deduct the sum of the prorations from estimate of total SEA direct operating costs of \$13.0 billion, i.e.:

	Billions
SEA direct operating costs	\$13.0
Less:	
Intelligence and communications	-1.5
Airlift and sealift	- .7
Central supply and maintenance	-4.0
Training, medical, etc.	-2.5
Administration and associated activities	- .4
	<hr/>
SEA direct operating costs, General Purpose Forces	3.9

FINANCIAL ADJUSTMENTS

Mr. WHITTEN. At several points in your statement you mention the financial adjustments to the fiscal year 1969 requirements and fiscal year 1970 estimates. Table 1 indicates these revised adjustments as \$3.525 billion for 1969 and \$2.433 billion for 1970. These large adjustments are always of some concern to this committee. Can you now give us some of the programs and/or projects from which these funds will be generated and supply a detailed list for the record?

Mr. MOOT. Yes, sir.

One large item in the financial adjustments over the last several years has been the transfers from our stock funds, Mr. Chairman, the gradual move into our stock funds, which are inventory holding accounts, of material which was previously on the free issue basis, has provided for transfer of cash from the stock funds to the appropriations, reducing NOA as a financial adjustment. I did touch upon this in the statement. I will highlight in terms of a specific table the specific differences in the 1969-70 estimates if you would like?

(The information follows:)

FINANCING OF FISCAL YEAR 1970 DIRECT BUDGET PLAN
 Revised to reflect FY 1970 Budget Amendment and
 Changes in FY 1969 Supplemental Request

(Thousands of Dollars)

	TOA (direct budget plan)	Financing Adjustments					Total financing adjustments	Budget Authority
		Unobligated balance brought forward available for new programs (-)	Recoupments (Reprogramming from prior year budget plans)	Resources from reimbursable sales not requiring replacement (-)	Other financing adjustments			
FEDERAL FUNDS								
Military Personnel								
Military Personnel, Army	8,551,700	-	-	-	-	-	8,551,700	
Military Personnel, Navy	4,508,500	-	-	-	-	-	4,508,500	
Military Personnel, Marine Corps	1,577,000	-	-	-	-	-	1,577,000	
Military Personnel, Air Force	5,952,800	-	-	-	-	-	5,952,800	
Reserve Personnel, Army	311,000	-	-	-	-	-	311,000	
Reserve Personnel, Navy	180,400	-	-	-	-	-	180,400	
Reserve Personnel, Marine Corps	85,700	-	-	-	-	-	85,700	
Reserve Personnel, Air Force	363,500	-	-	-	-	-	363,500	
National Guard Personnel, Army	103,100	-	-	-	-	-	103,100	
Nat'l. Guard Personnel, Air Force	2,735,000	-	-	-	-	-	2,735,000	
Retired Pay, Defense	24,376,900	-	-	-	-	-	24,376,900	
TOTAL - Military Personnel								
Operation and Maintenance								
Oper. and Maint., Army	7,504,500	-	-	-	-	-	7,504,500	
Oper. and Maint., Navy	5,323,700	-	-	-	-	-	5,323,700	
Oper. and Maint., Marine Corps	457,000	-	-	-	-	-	457,000	
Oper. and Maint., Air Force	6,711,700	-	-	-	-	-	6,711,700	
Oper. & Maint., Defense Agencies	1,095,000	-	-	-	-	-	1,095,000	
Oper. & Maint., Army Nat'l Guard	306,000	-	-	-	-	-	306,000	
Oper. & Maint., Air Nat'l Guard	342,534	-	-	-	-	-	342,534	
Rifle Practice, Army	-	-	-	-	-	-	-	
Claims, Defense	41,000	-	-	-	-	-	41,000	
Contingencies, Defense	10,000	-	-	-	-	-	10,000	
Court of Mil. Appeals, Defense	666	-	-	-	-	-	666	
TOTAL - Operation & Maintenance	21,792,100	-	-	-	-	-	21,792,100	
Procurement								
Proc. of Equip. & Missiles, Army	5,559,100	-15,000	-325,000	-100,000	-50,000	-490,000	5,069,100	
Proc. of Aircraft & Missiles, N.	3,350,500	-	-75,000	-15,000	-25,000	-115,000	3,235,500	
Shipbuilding & Conversion, Navy	2,781,650	-150,250	-	-	-	-150,250	2,631,400	
Other Procurement, Navy	2,356,393	-123,693	-200,000	-10,000	-	-333,693	2,022,700	
Procurement, Marine Corps	714,401	-38,801	-25,000	-	-	-63,801	650,600	
Aircraft Procurement, Air Force	4,337,600	-87,400	-100,000	-50,000	-325,000	-562,400	3,775,200	
Missile Procurement, Air Force	1,616,800	-105,400	-25,000	-	-	-130,400	1,486,400	
Other Procurement, Air Force	2,310,253	-266,953	-100,000	-5,000	-	-371,953	1,938,300	
Procurement, Defense Agencies	101,761	-24,161	-	-	-	-24,161	77,600	
TOTAL - Procurement	23,128,458	-811,658	-850,000	-180,000	-400,000	-2,241,658	20,886,800	
Research, Develop., Test & Eval.								
RD&E, Army	1,849,500	-	-	-	-	-	1,849,500	
RD&E, Navy	2,211,500	-	-	-	-	-	2,211,500	
RD&E, Air Force	3,566,800	-5,000	-	-	-	-5,000	3,561,800	
RD&E, Defense Agencies	500,200	-	-	-	-	-	500,200	
Emergency Fund, Defense	100,000	-	-	-	-	-	100,000	
TOTAL - RD&E	8,227,400	-5,000	-	-	-	-5,000	8,222,400	
Military Construction								
Military Construction, Army	496,426	-84,826	-	-16,000	-	-100,826	395,600	
Military Construction, Navy	404,700	-7,500	-	-	-	-7,500	397,200	
Military Construction, Air Force	369,100	-	-	-	-	-	369,100	
Mil. Con., Defense Agencies	74,500	-	-	-	-	-	74,500	
Mil. Con., Army Reserve	10,000	-	-	-	-	-	10,000	
Mil. Con., Naval Reserve	5,600	-	-	-	-	-	5,600	
Mil. Con., Air Force Reserve	5,300	-	-	-	-	-	5,300	
Mil. Con., Army Nat'l. Guard	15,000	-	-	-	-	-	15,000	
Mil. Con., Air Nat'l. Guard	13,800	-	-	-	-	-	13,800	
TOTAL - Military Construction	1,417,826	-92,326	-	-16,000	-	-108,326	1,309,500	

OASD (Comptroller)
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 May 2, 1969

FINANCING OF FISCAL YEAR 1970 DIRECT BUDGET PLAN
Revised to reflect FY 1970 Budget Amendment and
Changes in FY 1969 Supplemental Request

(Thousands of Dollars)

	TOA (direct budget plan)	Financing Adjustments					Budget Authority
		Unobligated balance brought forward available for new programs (-)	Recoupments Reprogramming from prior year budget plans)	Resources from reimbursable sales not requiring replacement (-)	Other financing adjustments	Total financing adjustments	
Family Housing							
Family Housing, Defense	613,644	-5,251	-	-6,893	6,300	-5,844	607,800
Homeowners Assistance, Defense	13,835	-12,045	-	-450	3,068	-9,427	84,408
TOTAL - Family Housing	627,479	-17,296	-	-7,343	9,368	-15,271	612,208
Civil Defense							
Oper. & Maint., Civil Defense	50,700	-	-	-	-	-	50,700
Res. Shelter Survey & Marking, CD	24,600	-	-	-	-	-	24,600
TOTAL - Civil Defense	75,300	-	-	-	-	-	75,300
Special Foreign Currency Program	3,840	-3,840	-	-	-	-3,840	-
SUBTOTAL - Military Functions	79,649,303	-930,120	-850,000	-209,343	-390,632	-2,374,095	77,275,208
Military Assistance							
Military Assistance, Executive	434,000	-5,001	-47,999	-6,000	-	-59,000	375,000
Foreign Mil. Credit Sales, Exec.	275,000	-	-	-	-	-	275,000
TOTAL - Military Assistance	709,000	-5,001	-47,999	-6,000	-	-59,000	650,000
TOTAL - FEDERAL FUNDS - DoD	80,358,303	-935,121	-897,999	-209,343	-390,632	-2,433,095	77,925,208
TRUST FUNDS							
Army Trust Funds	-	-	-	-	50	50	50
Navy Trust Funds	-	-	-	-	7,372	7,372	7,372
Air Force Trust Funds	-	-	-	-	7	7	7
SUBTOTAL - Military Functions	-	-	-	-	7,429	7,429	7,429
Military Assistance Trust Funds	-	-	-	-	750,000	750,000	750,000
TOTAL - TRUST FUNDS	-	-	-	-	757,429	757,429	757,429
ADJUSTMENTS							
Interfund Transactions							
Ships' Stores Profits, Navy	-	-	-	-	-7,200	-7,200	-7,200
Applicable Receipts from Public							
Applicable Receipts, Army	-	-	-	-	-67,505	-67,505	-67,505
Applicable Receipts, Navy	-	-	-	-	-39,625	-39,625	-39,625
Applicable Receipts, Air Force	-	-	-	-	-37,357	-37,357	-37,357
Appl. Receipts, Def. Agencies/OSD	-	-	-	-	-20	-20	-20
SUBTOTAL - Military Functions	-	-	-	-	-144,507	-144,507	-144,507
Applicable Receipts, MAP	-	-	-	-	-992,325	-992,325	-992,325
TOTAL - Applicable Receipts	-	-	-	-	-1,136,832	-1,136,832	-1,136,832
TOTAL - ADJUSTMENTS	-	-	-	-	-386,603	-386,603	-386,603
GRAND TOTAL - Department of Defense	80,358,303	-935,121	-897,999	-209,343	-777,235	-2,819,698	77,538,605

a/ Includes \$86,618 thousand applied to debt reduction.

b/ Reflects \$4,408 thousand of authority to spend agency debt receipts.

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FINANCING OF FISCAL YEAR 1960 DIRECT BUDGET PLAN
Revised to reflect FY '60 Budget Amendment and

Changes in FY 1960 Supplemental Request
(Thousands of Dollars)

	TDA (direct budget plan)	Financing Adjustments					Budget Authority	Transfers from (-) or to the account (deduct)	Appropria- tions
		Unobligated balance brought forward available for new programs (-)	Reobligations (-) from prior year budget plans	Unobligated balance carried forward available to finance future year programs	Resources from reimbursable sales not requiring replacement (-)	Other financing adjustments (-)				Total financing adjustments
FEDERAL FUNDS									
Military Personnel									
Military Personnel, Army	8,467,200	-	-	-	-	-	-	8,467,200	8,467,200
Military Personnel, Navy	4,455,200	-	-	-	-	-	-	4,455,200	4,455,200
Military Personnel, Marine Corps	1,535,500	-	-	-	-	-	-	1,535,500	1,535,500
Military Personnel, Air Force	6,093,600	-	-	-	-	-	-	6,093,600	6,093,600
Reserve Personnel, Army	298,800	-	-	-	-	-	-	298,800	298,800
Reserve Personnel, Marine Corps	173,500	-	-	-	-	-	-	173,500	173,500
Reserve Personnel, Air Force	37,900	-	-	-	-	-	-	37,900	37,900
National Guard Personnel, Army	73,700	-	-	-	-	-	-	73,700	73,700
Nat'l. Guard Personnel, Air Force	300,900	-	-	-	-	-	-	300,900	300,900
Retired Pay, Defense	91,400	-	-	-	-	-	-	91,400	91,400
TOTAL - Military Personnel	23,954,700	-	-	-	-	-	-	23,954,700	23,954,700
Operation and Maintenance									
Oper. and Maint., Army	8,056,141	-	-	-	-	-	-	8,056,141	8,056,141
Oper. and Maint., Navy	5,381,037	-	-	-	-	-	-	5,381,037	5,381,037
Oper. and Maint., Marine Corps	464,600	-	-	-	-	-500	-500	5,382,537	5,382,537
Oper. and Maint., Air Force	6,949,105	-	-	-	-	-	-	465,600	694,600
Oper. & Maint., Defense Agencies	1,071,439	-	-	-	-	-	-	6,949,105	6,949,105
Oper. & Maint., Army Nat'l. Guard	277,668	-	-	-	-	-	-	1,071,439	1,071,439
Oper. & Maint., Air Nat'l. Guard	282,682	-	-	-	-	-	-	277,668	277,668
Rifle Practice, Army	36,000	-	-	-	-	-	-	282,682	282,682
Claims, Defense	10,000	-	-	-	-	-	-	36,000	36,000
Contingencies, Defense	694	-	-	-	-	-	-	10,000	10,000
Court of Mil. Appeals, Defense	694	-	-	-	-	-	-	694	694
TOTAL - Operation & Maintenance	22,539,322	-	-	-	-	-500	-500	22,538,822	22,539,100
Procurement									
Proc. of Equip. & Missiles, Army	6,861,752	-284,600	-200,000	15,000	-100,000	-543,752	-1,113,352	5,748,400	5,748,400
Proc. of Aircraft & Missiles, B.	3,240,387	-159,000	-99,087	-	-15,000	-410,000	-674,087	2,576,300	2,576,300
Shipbuilding & Conversion, Navy	1,097,850	-260,100	-167,300	150,250	-	-	-377,150	820,700	820,700
Other Procurement, Navy	2,772,387	-134,200	-208,000	123,693	-15,000	-	-12,280	2,305,600	2,305,600
Procurement, Marine Corps	671,799	-5,600	-25,000	31,801	-	-	-265,787	610,200	610,200
Aircraft Procurement, Air Force	4,598,300	-55,000	-420,900	87,400	-50,000	-10,000	-1,759	3,860,000	3,860,000
Missile Procurement, Air Force	1,639,800	-	-25,000	105,400	-	-	-	1,720,200	1,720,200
Other Procurement, Air Force	2,705,047	-	-254,000	266,993	-15,000	-	-	2,647,040	2,647,040
Procurement, Defense Agencies	57,330	-	-	28,161	-	-	-	85,491	85,491
TOTAL - Procurement	23,949,061	-502,500	-1,400,287	311,522	-195,000	-4,576,032	-1,876,151	20,872,900	20,872,900
Research, Develop., Test. & Eval.									
RDM&E, Army	1,609,143	-67,540	-	-	-	-	-67,540	1,541,603	1,541,603
RDM&E, Navy	2,161,074	-19,735	-	-	-	-	-19,735	2,141,339	2,141,339
RDM&E, Air Force	3,373,354	-25,000	39,400	5,000	-	-	19,400	3,392,754	3,392,754
RDM&E, Defense Agencies	434,667	-	-	-	-	-	-	434,667	434,667
Emergency Fund, Defense	60,000	-	-	-	-	-	-	60,000	60,000
TOTAL - RDM&E	7,647,203	-112,275	39,400	5,000	-	-	-67,875	7,579,528	7,579,528

GMD (Comptroller)
PAD-589
May 2, 1960

FINANCING OF FISCAL YEAR 1970 DIRECT BUDGET PLAN
 Revised to reflect FY 1970 Budget Amendment and
 Changes to FY 1969 Supplemental Request

	TOA (direct budget plan)	Financing Adjustments						Budget Authority	Transfers from (-) or to the account (deduct)	Appro- priations
		Unobligated balance brought forward available for new programs (-)	Reobligations (-) Reprogramming from prior year budget plans	Unobligated balance carried forward available to finance future year programs	Resources from reimbursable sales not requiring replacement (-)	Other financing adjustments	Total financing adjustments			
Military Construction										
Military Construction, Army	553,717	-	-74,010	84,826	-	-16,407	-5,591	548,126	-	548,126
Military Construction, Navy	330,639	-7,604	-33,796	7,500	-	-5,226	-39,126	291,513	-	291,513
Military Construction, Air Force	229,141	-	-10,000	-	-	-	-10,000	222,141	-	222,141
Mil. Con., Defense Agencies	94,716	-23,253	-	-	-	11,937	-11,300	83,396	-	83,396
Mil. Con., Army Reserve	8,880	-5,880	-	-	-	-	-5,880	3,000	-	3,000
Mil. Con., Naval Reserve	5,000	-	-	-	-	-	-	5,000	-	5,000
Mil. Con., Air Force Reserve	4,300	-	-	-	-	-	-	4,300	-	4,300
Mil. Con., Army National Guard	9,500	-6,800	-	-	-	-	-6,800	2,700	-	2,700
Mil. Con., Air National Guard	8,300	-	-	-	-	-	-	8,300	-	8,300
TOTAL - Military Construction	1,247,193	-43,537	-117,806	92,326	-	-9,700	-78,717	1,168,476	-	1,168,476
Family Housing										
Family Housing, Defense	504,809	-3,655	3,910	5,251	-22,888	13,375	-4,007	500,802	a-82,898	583,700
Homeowners Assistance Fund, Def.	21,205	-19,350	-	12,045	-	-	-7,305	13,900	b-7,700	6,200
TOTAL - Family Housing	526,014	-23,005	3,910	17,296	-22,888	13,375	-11,312	514,702	-75,198	589,900
Civil Defense										
Oper. & Maint., Civil Defense	48,415	-	-	-	-	-500	-500	47,915	-125	48,040
Res. Shelter Survey & Marking, CD	12,513	-	-	-	-	-500	-500	12,000	-	12,500
TOTAL - Civil Defense	60,928	-	-	-	-	-1,000	-1,000	60,415	-125	60,540
Special Foreign Currency Program	10,778	-14,618	-	3,840	-	-	-10,778	-	-	-
Emergency Fund, Southeast Asia	-	-56,232	-	-	-	56,232	-	-	-	-
SUBTOTAL - Military Functions	79,926,186	-1,168,187	-1,474,783	930,120	-217,888	-1,517,125	-3,447,843	76,478,343	-81,601	76,559,944
Military Assistance										
Military Assistance, Executive	441,700	-5,001	-70,700	5,001	-6,000	-	-76,700	375,000	-	375,000
Foreign Mil. Credit Sales, Exec.	296,000	-	-	-	-	-	-	296,000	-	296,000
TOTAL - Military Assistance	747,700	-5,001	-70,700	5,001	-6,000	-	-76,700	671,000	-	671,000
TOTAL - FEDERAL FUNDS - DoD	80,673,886	-1,173,188	-1,545,483	935,121	-223,888	-1,517,125	-3,524,543	77,149,343	-81,601	77,230,944
TRUST FUNDS										
Army Trust Funds	-	-	-	-	-	-	50	50	-	50
Navy Trust Funds	-	-	-	-	-	-	7,372	7,372	-	7,372
Air Force Trust Funds	-	-	-	-	-	-	7	7	-	7
SUBTOTAL - Military Functions	-	-	-	-	-	-	7,429	7,429	-	7,429
Military Assistance Trust Funds	-	-	-	-	-	-	810,000	810,000	-	810,000
TOTAL - TRUST FUNDS	-	-	-	-	-	-	817,429	817,429	-	817,429
ADJUSTMENTS										
Interfund Transactions										
Ships' Stores Profits, Navy	-	-	-	-	-	-7,200	-7,200	-7,200	-	-7,200
Applicable Receipts from Public										
Applicable Receipts, Army	-	-	-	-	-	-58,505	-58,505	-58,505	-	-58,505
Applicable Receipts, Navy	-	-	-	-	-	-39,625	-39,625	-39,625	-	-39,625
Applicable Receipts, Air Force	-	-	-	-	-	-34,997	-34,997	-34,997	-	-34,997
Appl. Receipts, Def. Agencies/OSD	-	-	-	-	-	-20	-20	-20	-	-20
SUBTOTAL - Military Functions	-	-	-	-	-	-133,147	-133,147	-133,147	-	-133,147
Applicable Receipts, MAP	-	-	-	-	-	-978,325	-978,325	-978,325	-	-978,325
TOTAL - Applicable Receipts	-	-	-	-	-	-1,111,472	-1,111,472	-1,111,472	-	-1,111,472
TOTAL - ADJUSTMENTS	-	-	-	-	-	-301,243	-301,243	-301,243	-	-301,243
GRAND TOTAL - Department of Defense	80,673,886	-1,173,188	-1,545,483	935,121	-223,888	-1,818,368	-3,829,786	76,848,100	-81,601	76,969,701

a/ Portion of appropriation applied to debt reduction.
 b/ Authority to spend agency debt receipts.

Mr. WHITTEN. Did you have a question, Mr. Slack?

JOINT BOB/DOD BUDGET REDUCTIONS

Mr. SLACK. Mr. Chairman, if it is agreeable to you, I would like to have the Secretary insert in the record at this point the figures for each of the last 5 years that were cut by the Department of Defense in conjunction with the Bureau of the Budget from the Services, original requests.

Mr. WHITTEN. Would you provide the information for the record please?

Mr. MOOR. We will be happy to do that.
(The information follows:)

COMPARISON OF SERVICE REQUESTS WITH PRESIDENT'S BUDGET, FISCAL YEARS 1964-70

(In millions of dollars)

	Direct budget plan (TOA)			New obligational authority (NOA)		
	Service request	Budget review adjustments	President's budget	Service request	Budget review adjustments	President's budget
Fiscal year 1964:						
Army.....	14,346	-1,241	13,105	14,344	-1,507	12,837
Navy.....	18,665	-3,148	15,517	18,632	-3,390	15,242
Air Force.....	24,254	-3,603	20,651	23,659	-3,832	19,827
Defense agencies/OSD.....	2,408	+672	3,080	2,408	-667	3,075
Civil defense.....	689	-389	300	689	-389	300
Military assistance.....	1,700	-70	1,630	1,500	-20	1,480
Proposed legislation.....		+900	900		+900	900
Additional requirements.....	1,301	-1,301		1,301	-1,301	
Total, fiscal year 1964.....	63,364	-8,179	55,184	62,534	-8,873	53,661
Fiscal year 1965:						
Army.....	13,697	-1,324	12,373	13,696	-1,701	11,995
Navy.....	17,960	-2,859	15,102	17,940	-3,205	14,735
Air Force.....	23,765	-3,936	19,829	23,470	-4,285	19,184
Defense agencies/OSD.....	3,790	-346	3,445	3,779	-343	3,436
Civil defense.....	560	-202	358	560	-202	358
Military assistance.....	1,640	-490	1,150	1,490	-490	1,000
Proposed legislation.....		+172	172		+172	172
Total, fiscal year 1965.....	61,411	-8,983	52,428	60,934	-10,054	50,880
Fiscal year 1966:						
Army.....	13,825	-1,386	12,439	13,436	-2,099	11,336
Navy.....	17,204	-1,862	15,341	17,014	-2,743	14,272
Air Force.....	21,232	-2,349	18,882	20,846	-2,853	17,992
Defense agencies/OSD.....	3,657	-33	3,625	3,652	-51	3,600
Civil defense.....	372	-178	194	372	-178	194
Military assistance.....	1,279	-21	1,258	1,191	-21	1,170
Total, fiscal year 1966.....	57,569	-5,830	51,739	56,511	-7,946	48,565
Fiscal year 1967:						
Army.....	20,647	-3,271	17,376	20,637	-3,521	17,116
Navy.....	20,648	-3,068	17,579	20,559	-3,607	16,952
Air Force.....	26,456	-4,959	21,498	26,208	-5,266	20,942
Defense agencies/OSD.....	4,278	-469	3,809	4,278	-484	3,794
Civil defense.....	193	-59	134	193	-60	133
Military assistance.....	1,774	-747	1,027	1,664	-747	917
Total, fiscal year 1967.....	73,997	-12,573	61,424	73,540	-13,685	59,855
Fiscal year 1968:						
Army.....	27,343	-3,425	23,918	27,742	-4,113	23,629
Navy.....	28,877	-7,188	21,690	28,862	-7,728	21,134
Air Force.....	29,689	-4,408	25,281	29,768	-4,878	24,891
Defense agencies/OSD.....	4,972	-206	4,767	5,718	-850	4,867
Civil defense.....	163	-52	111	163	-52	111
Military assistance.....	621		621	606	-10	596
Proposed legislation.....		+42	42		+42	42
Total, fiscal year 1968.....	91,666	-15,237	76,429	92,859	-17,589	75,270

COMPARISON OF SERVICE REQUESTS WITH PRESIDENT'S BUDGET, FISCAL YEARS 1964-70

[In millions of dollars]

	Direct budget plan (TOA)			New obligational authority (NOA)		
	Service request	Budget review adjustments	President's budget	Service request	Budget review adjustments	President's budget
Fiscal year 1969:						
Army.....	32,277	-6,302	25,974	32,449	-7,234	25,215
Navy.....	30,967	-7,039	23,928	30,952	-7,929	23,023
Air Force.....	34,079	-7,110	26,969	33,924	-7,886	26,038
Defense agencies/OSD.....	3,568	+1,202	4,769	3,421	+1,409	4,830
Civil defense.....	160	-82	77	160	-83	77
Military assistance.....	613	+7	620	630	-90	540
Proposed legislation.....		+75	75		+75	75
Total, fiscal year 1969.....	101,664	-19,250	82,414	101,536	-21,739	79,797
Fiscal year 1970:						
Army.....	30,101	-3,770	26,331	29,991	-4,129	25,862
Navy.....	30,496	-6,088	24,408	30,434	-6,698	23,736
Air Force.....	33,269	-7,047	26,222	32,952	-7,598	25,353
Defense agencies/OSD.....	5,607	-351	5,256	5,687	-476	5,211
Civil defense.....	125	-50	75	125	-50	75
Military assistance.....	949	-240	709	771	-363	408
Total, fiscal year 1970.....	100,547	-17,545	83,002	99,959	-19,314	80,645

UNOBLIGATED AND UNEXPENDED FUNDS

Mr. WHITTEN. Will you insert in the record a schedule of estimated unobligated and unexpended balance of funds as of the end of this year by appropriations and the original year in which these funds were appropriated.

Mr. MOOR. We can certainly do the former. Can I consult with my colleagues concerning the year of each of these. We can, without any difficulty.

(The information follows:)

ESTIMATED UNOBLIGATED BALANCES AS OF JUNE 30, 1969

(Millions of Dollars)

	FY 1969 program	FY 1968 program	FY 1967 program	FY 1966 program	FY 1965 & prior programs	Un- programmed	Total
Operation and Maintenance							
Operation and Maintenance, Army	19 a/	-	-	-	-	-	19
Procurement							
Procurement of Equipment & Missiles, Army	1,096	705	260	73	51	15	2,200
Procurement of Aircraft & Missiles, Navy	664	285	151	55	48	-	1,203
Shipbuilding and Conversion, Navy	344	140	400	90	290	150	1,414
Other Procurement, Navy	409	115	60	40	20	124	768
Procurement, Marine Corps	101	50	15	10	8	39	223
Aircraft Procurement, Air Force	1,097	350	170	75	37	87	1,816
Missile Procurement, Air Force	256	48	12	10	10	105	441
Other Procurement, Air Force	402	60	16	8	5	267	758
Procurement, Defense Agencies	10	6	4	1	1	24	46
Research, Development, Test, & Evaluation							
Research, Development, Test, & Eval., Army	160	40	14	7	7	-	228
Research, Development, Test, & Eval., Navy	205	20	15	3	7	-	250
Research, Develop., Test, & Eval., Air Force	160	25	15	5	5	5	215
Research, Develop., Test, & Eval., Def. Ags.	69	8	4	3	3	-	87
Military Construction							
Military Construction, Army	235	115	50	40	12	85	537
Military Construction, Navy	201	121	41	21	9	8	401
Military Construction, Air Force	90	40	6	7	7	-	150
Military Construction, Defense Agencies	53	3	*	*	*	-	56
Military Construction, Army Reserve	4	*	1	*	-	-	5
Military Construction, Naval Reserve	2	1	*	1	*	-	4
Military Construction, Air Force Reserve	3	1	*	*	*	-	4
Military Construction, Army Nat'l. Guard	6	*	*	-	-	-	6
Military Construction, Air National Guard	5	2	2	1	*	-	10

a/ Represents reimbursable orders, primarily from military assistance. Obligations will be incurred against these balances after June 30, 1969, to fill the orders.

	FY 1969 program	FY 1968 program	FY 1967 program	FY 1966 program	FY 1965 & prior programs	Un- programmed	Total
Family Housing							
Family Housing, Defense	25	12	*	12	10	5	64
Homeowners Assistance Fund, Defense	-	-	-	-	-	3	3
Civil Defense							
Research Shelter Survey & Marking, Civil Def.	1	-	-	-	-	-	1
Special Foreign Currency Program	4	-	1	-	-	4	9
Military Assistance							
Military Assistance, Executive	-	-	-	-	-	5	5
Total - Department of Defense	5,621	2,147	1,237	462	530	926	10,923

*Less than \$500 thousand.

NOTE: Balances of working capital in revolving funds, balances in trust funds, and other budget concepts adjustments are excluded.

ESTIMATED UNEXPENDED BALANCES AS OF JUNE 30, 1969

(Millions of Dollars)

	FY 1969 program	FY 1968 program	FY 1967 program	FY 1966 program	"M" accts./ FY 1965 and prior	Working capital/ budget concepts adjust.	Un- programmed	Total
Military Personnel								
Military Personnel, Army	476	10	-	-	7	-	-	493
Military Personnel, Navy	182	17	-	-	7	-	-	206
Military Personnel, Marine Corps	59	2	-	-	*	-	-	61
Military Personnel, Air Force	181	2	-	-	1	-	-	184
Reserve Personnel, Army	68	6	-	-	2	-	-	76
Reserve Personnel, Navy	18	3	-	-	*	-	-	21
Reserve Pers., Marine Corps	-	-	-	-	*	-	-	-
Reserve Pers., Air Force	13	*	-	-	*	-	-	13
National Guard Personnel, Army	71	-	-	-	*	-	-	71
Nat'l. Guard Personnel, Air Force	11	1	-	-	*	-	-	12
Retired Pay, Defense	15	1	-	-	-	-	-	16
Operation and Maintenance								
Operation and Maintenance, Army	789	260	-	-	250	-	-	1,294
Operation and Maintenance, Navy	800	99	-	-	96	-	-	995
Operation and Maint., Marine Corps	136	18	-	-	3	-	-	157
Operation and Maint., Air Force	865	70	-	-	25	-	-	960
Operation and Maint., Def. Ags.	85	5	-	-	2	-	-	92
Operation and Maint., Army Nat'l. Guard	24	*	-	-	1	-	-	25
Operation and Maint., Air Nat'l. Guard	34	1	-	-	*	-	-	35
Claims, Defense	1	-	-	-	-	-	-	1
Contingencies, Defense	7	-	-	-	*	-	-	7
Court of Military Appeals, Defense	*	-	-	-	-	-	-	*
Misc. Expired Accounts, Navy	-	-	-	-	24	-	-	24
Misc. Expired Accounts, Air Force	-	-	-	-	3	-	-	3

	FY 1969 program	FY 1968 program	FY 1967 program	FY 1966 program	"M" accts./ FY 1965 and prior	Working capital/ budget concepts adjust.	Un- programmed	Total
Procurement								
Proc. of Equip. & Missiles, Army	4,751	1,705	414	81	104	-	15	7,070
Proc. of Aircraft & Missiles, Navy	2,518	1,043	460	153	149	-	-	4,323
Shipbuilding and Conversion, Navy	1,095	950	1,492	600	735	-	150	5,022
Other Procurement, Navy	1,841	664	330	130	82	-	124	3,171
Procurement, Marine Corps	494	163	86	75	22	-	39	879
Aircraft Procurement, Air Force	2,923	1,325	525	98	47	-	87	5,005
Missile Procurement, Air Force	1,019	260	50	20	21	-	105	1,475
Other Procurement, Air Force	1,691	260	170	105	77	-	267	2,570
Procurement, Defense Agencies	49	17	8	3	3	-	24	104
Research, Develop., Test, & Eval.								
RDT&E, Army	736	215	80	30	32	-	-	1,093
RDT&E, Navy	898	220	87	29	42	-	-	1,276
RDT&E, Air Force	1,091	200	60	26	25	-	5	1,407
RDT&E, Defense Agencies	324	90	55	23	24	-	-	521
Emergency Fund, Defense	34	-	-	-	-	-	-	34
Military Construction								
Military Construction, Army	506	232	147	98	17	-	85	1,085
Military Construction, Navy	264	216	42	23	-	-	8	553
Military Construction, Air Force	215	179	45	30	10	-	-	479
Military Construction, Def. Ags.	94	7	1	1	5	-	-	108
Mil. Construction, Army Reserve	8	3	-	-	*	-	-	11
Mil. Construction, Naval Reserve	5	3	1	1	2	-	-	12
Mil. Construction, AF Reserve	4	3	1	*	*	-	-	8
Mil. Con., Army National Guard	10	7	1	-	*	-	-	18
Mil. Con., Air National Guard	8	6	2	2	1	-	-	19

	FY 1969 program	FY 1968 program	FY 1967 program	FY 1966 program	"M" accts./ FY 1965 and prior	Working capital/ budget concepts adjust.	Un- programmed	Total
Family Housing								
Family Housing, Defense	109	96	1	50	8	-	5	269
Homeowners Assist. Fund, Defense	1	-	-	-	-	-	3	4
Civil Defense								
Operation & Maint., Civil Defense	23	13	-	-	9	-	-	45
Res. Shelter Survey & Marking, CD	7	5	4	5	2	-	-	23
Special Foreign Currency Program	11	-	-	-	-	-	4	15
Working Capital Funds	-	-	-	-	-	1,208	-	1,208
Budget Concepts Adjustments	-	-	-	-	-	39	-	39
Military Assistance								
Military Assistance, Executive	310	240	120	101	35	-	5	811
Foreign Mil. Credit Sales, Exec.	289	-	-	-	-	-	-	289
Foreign Military Sales Fund	-	-	-	-	363	-	-	363
MAP Budget Concepts Adjustments	-	-	-	-	-	2,666	-	2,666
Total - Department of Defense	25,163	8,617	4,182	1,689	2,237	3,913	926	46,727

*Less than \$500 thousand.

REPROGRAMING ACTIONS

Mr. WHITTEN. What is the extent of reprogramming actions?

Mr. MOOT. Generally speaking our reprogramming requests or submissions to this committee each year average between a billion and two billion, I believe.

Mr. WHITTEN. Could we have a detailed compilation of the various reprogramming actions that have been requested and have been approved and also the source of funds? This will require a schedule similar to one appearing on page 365 of part 1 of last year's presentation having to do with reprogramming.

Mr. MOOT. Yes, sir.

(The information follows:)

COMPARISON OF REPROGRAMING ACTIONS, FISCAL YEAR 1966-FISCAL YEAR 1969 AND SUMMARY OF MAJOR FISCAL YEAR 1969 REPROGRAMING ACTIONS

Reprogramming actions processed during fiscal year 1966-68 totaled approximately \$2 to \$5 billion a year. To date, approximately \$3.3 billion has been reprogrammed in fiscal year 1969. The following is a comparison by appropriation title and defense component.

[Dollar amounts in millions]

Appropriation	Fiscal year 1966		Fiscal year 1967		Fiscal year 1968		Fiscal year 1969 (through June 25, 1969)	
	Number of actions	Amount	Number of actions	Amount	Number of actions	Amount	Number of actions	Amount
Military personnel.....	3	75.5	2	191.2	6	181.1	1	25.2
O. & M.....	10	230.8	9	398.7	5	121.1	5	358.2
Procurement.....	61	1,552.4	51	2,309.2	77	3,899.5	44	2,446.6
R.D.T. & E.....	42	495.1	41	549.7	30	596.1	27	440.2
Total.....	116	2,353.8	103	3,448.8	118	4,797.8	77	3,270.2
Army.....	37	760.0	28	993.4	36	1,884.2	22	1,193.5
Navy.....	39	713.7	44	1,303.1	52	1,033.8	30	672.1
Air Force.....	36	866.2	28	1,140.8	26	1,854.8	21	1,394.5
Defense agencies.....	4	13.9	3	11.5	4	25.0	4	10.1
Total.....	116	2,353.8	103	3,448.8	118	4,797.8	77	3,270.2

Through June 25 of this fiscal year, 77 reprogramming actions have been approved and transmitted to the Congress. These actions resulted in reprogramming increases to the fiscal year 1969 programs of about \$3,270.2 million. Programming actions which represented the program application of funds transferred from the "Emergency fund, Defense" and changes resulting from reclassification of accounts (no change in scope or purposes as originally approved by the Congress) have been excluded from the above amounts.

A summary of major fiscal year 1969 reprogramming actions processed through June 25, 1969, follows:

Increases

[In millions of dollars]

Military personnel, Army:

For additional fiscal year 1969 requirements for subsistence of enlisted personnel, permanent change of station travel and pay and allowances of officers, enlisted, and cadets..... 25.2

Increases—Continued

[In millions of dollars]

Procurement of equipment and missiles, Army:	
_____ additional light observation helicopters resulting from _____	Amount
losses experienced in SEA.....	18.4
Sentinel anti-ballistic-missile system.....	95.2
Additional M-16A1 rifles and forward area radio sets to support SEA operations.....	105.1
_____ M-60A1 tanks and modification of laser range finder for M-60A1E and XM-37 trainers.....	31.1
120,000 riot control masks to support operations in SEA.....	3.3
Installation of a scavenger system on armored reconnaissance airborne assault vehicles.....	5.5
18 line items including:	
Aircraft:	
UH-1H Helio, Iroquois crash resistant fuel cells with related fittings for _____ production aircraft and for avionics systems.....	10.1
AH-56 aerial fire support system, Cheyenne.....	5.6
AH-56 advance procurement current year.....	8.9
Design to increase component life of T-63-A5A and A-700 turbine engines.....	6.4
Tracked combat vehicles Carrier personnel to cover cost of new-type nonintegral fuel tanks, new-type fuel lines and gun shield kits.....	13.9
Tactical and support vehicles:	
_____ Higher power diesel engines on the 5-ton, 6x6 truck.....	8.7
_____ M-600 series, 1-ton truck for SEA.....	4.3
_____ semitrailers, 52½ ton, XM-747 for SEA.....	4.0
Communications and electronics equipment:	
Quick reaction production.....	4.0
Electronic calibration capability.....	3.0
High channel capacity radio relay system.....	22.7
Radio tropospheric scatter system.....	11.5
_____ AN/MPQ-4A, radar set to replace losses.....	2.1
250 SB86/P switchboards for tropical climate.....	7.6
Other support equipment:	
4,200 generator sets.....	3.4
797 tank and pump unit liquid dispensing.....	2.3
_____.....	71.6
Production base support for support of _____ program to initiate _____.....	9.2
Total.....	199.3
307.5 16 line items including:	
Missiles repair parts and support material.....	26.0
Revised ammunition (various types) requirements in support of SEA operations in SEA.....	281.5
Total.....	307.5
Helio spare parts for tactical support of SEA.....	6.0
_____ modification kits for conversion of the M-113 armored personnel carrier fleet in SEA.....	3.2
_____.....	9.2
For _____ million rounds of ammo, cart, 40 mm; HE, XM684.....	3.4
For _____ million ammo, rocket, 2.75 inch, LSFAR (all types).....	25.3
For _____ MILVANS, transporter, modular, intermodel.....	12.9
Procurement of aircraft and missiles, Navy:	
Installation of a more powerful engine in the A-7B/E (attack) aircraft Corsair II.....	28.7
To modify _____ aircraft to TRIM configuration.....	17.7
A-4 and CH-46A/D modifications associated with SEA operations.....	29.0
Component improvement to uprate the J-52-P-8A and TF-30-P-8 engines for use in A-4, A-6, and A-7 aircraft.....	11.2

Increases—Continued

[In millions of dollars]

	<i>Amount</i>
Shipbuilding and conversion, Navy:	
Increased cost estimates on production of first general purpose assault ship (LHA).....	31.9
1 motor gunboat (PGM) for the Republic of Vietnam.....	.6
Aircraft procurement, Air Force:	
Increase for procurement of _____ additional F-4E aircraft in 1969 program and advance buy for long leadtime items.....	207.6
18 additional C-130E aircraft to cover higher than program attrition.....	38.7
Modification of aircraft associated with SEA operations (includes C/HC-130, F-105 and Tropic Moon III aircraft).....	65.5
Modification of in-service aircraft:	
C/HC-130.....	6.8
F-105.....	27.3
Other various aircraft.....	31.4
Total.....	<u>65.5</u>
The F/FB-111 program to reflect distribution of costs between 2 systems and aircraft modifications requirements associated with SEA, plus requirements for additional electronic countermeasure pads.....	197.4
14 T-41 aircraft for pilot training.....	.2
F-111D, F-111A adjustment in production schedule; plus _____ additional A-37B; plus _____ additional UH-1H/N; and 28 additional OX-1 aircraft.....	136.9
Other procurement, Air Force:	
Increase for 14 munitions items, ITAC and DCPG support.....	329.4
For _____ additional dispenser and bomb CBU-53 to cover SEA requirements.....	5.2
For _____ additional dispenser and bomb CBU-54 and _____ fuze extender M-1 for SEA requirements.....	14.6
For _____ equipment.....	17.6
Support of added requirements of defense communication planning group (DCPG).....	23.0
Automatic data processing equipment 11.6 and for 5,550 AN/URC-64 radio sets for urgent SEA requirements.....	16.0
6.2 for class V modifications and 3.5 for electroplating system in maintenance depot shops.....	9.7
Research, development, test, and evaluation, Army:	
New surveillance aircraft development (quiet aircraft).....	6.3
Transfer of Project Defender to Army from ARPA.....	37.9
40 line items including.....	74.1
Increase for advanced aerial fire support system.....	12.6
Concept formulation of the multirail artillery rocket system (MARS).....	4.4
Operation of Nike radars by Kwajalein Missile Range.....	10.6
Software development for land combat support system.....	5.3
Aircraft weaponization (engineer development).....	2.4
Tactical fire direction system (TACFIRE).....	5.8
Airborne surveillance and target acquisition.....	3.5
Tactical ADPS equipment.....	3.5
New surveillance aircraft.....	8.5
Research, development, test, and evaluation, Navy:	
Contract definition of VFX-1.....	5.0
Conversion of telemetry frequency at Pacific Missile Range.....	4.9
12 line items including.....	41.4
Operational development of carrier based airborne early warning and control aircraft (E-2/ATDS).....	4.0
Operational development of improved follow-on light attack aircraft airframe.....	3.4
Operational development of Shrike guidance heads and target identification acquisition system.....	2.7
Advanced development advanced antiship missile.....	3.9
Operational development of improved WALLEYE.....	3.7
Advanced development of structural steel for combat submarines.....	3.0

Increases—Continued

[In millions of dollars]

Research, development, test, and evaluation, Navy—Continued	Amount
Advance airborne reconnaissance.....	3.1
10 line items including.....	43.0
AEW CV-based aircraft E2A.....	10.0
Laser target designator.....	7.1
Surface missile system project.....	4.1
Antiradiation missile (Standard ARM).....	2.7
Shipboard electronic warfare.....	3.1
River and shallow water warfare.....	2.2
SAMID—ship antimissile integrated defense.....	2.0
Air-launched ship-launched ordnance fleet support.....	2.6
Advanced conventional ordnance.....	6.3
Conventional ordnance equipment.....	2.7
Air- and surface-launched antiship missile.....	3.6
Deep submerge program.....	4.1
2.2 Sonar SQS-26 and 4.7 advance submarine development.....	7.0
Submarine surveillance equipment program.....	3.1
Research, development, test, and evaluation, Air Force:	
Traffic control and landing systems (TRACALS).....	28.0
16 line items including.....	71.3
SR-71 squadrons to increase survivability.....	3.0
Aerospace flight dynamics.....	2.0
Advanced avionics.....	2.6
Advanced tactical fighter (F-X).....	15.5
Aircraft operations support.....	4.3
Subsonic cruise armed decoy.....	4.0
Advanced IOBM and basing.....	4.0
Tactical air-to-ground missile (Maverick).....	19.0
Tactical satellite communication.....	2.3
Point-to-point satellite communications.....	3.0
Satellite systems for precise navigation.....	.5
Technical sensor collection.....	2.0
High-energy laser program.....	2.0
Electronic warfare systems.....	2.7
Other operational support.....	2.2
Armament/ordnance operational support.....	2.1
9.6 for F-15A (F-X) advance tactical fighter and 10.4 short-range attack missile (SRAM).....	20.0
Aircraft and related equipment.....	18.0
4.0 for 100th strategic recon wing and 5.5 for lightweight precision bombing.....	9.5
F-15A (F-X) advance tactical fighter.....	13.5
FB-111A squadrons.....	13.7
2.1 for aircraft systems engineering; 3.4 for development acquisition and test management, and 3.7 for command management and base operations.....	9.2

Decreases

Procurement of equipment and missiles, Army:	
Decrease reflects reduced unit costs for Chinook airframes.....	4.6
Decrease reflects pro rata share of system engineering and manage- ment cost to missile lines and the elimination of Government furnished facilities at contractor plants.....	90.1
Decrease reflects programs deferred to subsequent years to provide resources for higher priority SEA requirements.....	21.3
Decrease from deferral of Sheridan Weapons system.....	5.3
Deletion of _____.....	10.6
Slippage in production schedule for transponder computer.....	10.4
Revised production schedule for AN/TPQ-28 radar set and DS/GS maintenance facility.....	14.4
Deletion of 1969 program for 5-ton crane due to delay in receipt and acceptance of equipment contracted from prior year programs.....	5.6
Deletion of riot control agent (CS2) since this item has not been effective for intended role.....	21.6

Decreases—Continued

[In millions of dollars]

Procurement of equipment and missiles, Army—Continued	
Tracked combat vehicle programs deferred until 1970 to provide resources for M60A1 tank and range finder.....	Amount 30.1
Decision by TOW missile contractor to provide their own production facilities.....	5.5
Revision of equipment authorizations for selected Signal Units.....	31.9
Decrease of the _____ program to conform with revised production leadtime.....	31.9
Reduction of _____ requirements based on consumption experience.....	127.7
Reduction because components included in original cost estimate are available from industrial stocks.....	15.5
Decrease adjusts the program to conform with revised priority of deployment.....	5.0
Decrease in 18 line items of various types of ammunition.....	306.3
Decrease in 7 line items of various types of ammunition.....	25.3
AN/TPQ-28 radar set decrease.....	13.2
Procurement of aircraft and missiles, Navy:	
Reduction in Standard Arm missiles due to decreased usage in SEA.....	25.3
Decrease in modification of SP-2H TRIM aircraft.....	24.9
Realignment of F-4B/J, RF-4B modification program and repricing of F-4 requirements.....	11.9
Deletion of integrated helicopter avionics system (IHAS) from the CH-53 program.....	13.4
Slippages in the 7F Sparrow III missile development program required a rephasing of the procurement program.....	18.2
Shipbuilding and conversion, Navy: Decrease in advance procurement for LHA long leadtime items.....	46.0
Procurement, Marine Corps:	
Reduction in consumption of ammunition and ordnance equipment.....	30.0
Decrease in hostile weapons locator since R. & D. model is still being evaluated and production models will not be available to meet SEA requirements until _____.....	7.2
Ammunition (various) consumption has not occurred at the projected rate, thereby resulted in a lower inventory objective.....	83.8
Reduction of radar set AN/TPS-32 can be accommodated through a reduction in the overhaul pipeline.....	11.0
Aircraft procurement, Air Force:	
Reduction in A-7D aircraft program.....	96.6
Reduction in RF-4C aircraft program.....	41.9
Decrease in aircraft modification requirements.....	65.0
F-4E aircraft buy program for fiscal year 1970 was deleted and advance buy in fiscal year 1969 was reduced accordingly.....	35.9
Decrease per decision to cut of the FB-111 program at 4 squadrons and concentrate efforts on the development of the AMSA.....	193.9
Research, development, test, and evaluation, Army:	
Reduction in 37 line items to provide resources for higher priority requirements.....	74.1
Reduction in 8 line items (various programs) will be accomplished by effecting small reductions in several facilities without impact on any single installation.....	5.8
Research, development, test, and evaluation, Navy:	
Reduction in 21 line items to provide resources for higher priority requirements.....	41.4
Decreased for reprogramming to high-priority projects as a result of cancellation of the F-111B aircraft program.....	43.0
Decrease result of a change in the scope of program for development of helio expendable bathythermographs, buoy sensors, and airborne current meters were eliminated.....	7.0
Research, development, test, and evaluation, Air Force:	
Reduction in 13 line items including:	
Light intratheater transport.....	10.0
Hard rock silo development.....	13.0
JTF-2 instrumentation support.....	6.6
Rocket propulsion.....	5.5
AIM-4D growth.....	5.5
Satellite control facility.....	4.9

Decreases—Continued

[In millions of dollars]

Research, development, test, and evaluation, Air Force—Continued		<i>Amount</i>
Reduction in 7 line items including:		
Light intratheater transports A/C.....	-----	4.0
Advanced fire control/missile technology.....	-----	3.5
A-X aircraft.....	-----	1.5
Airborne warning and control system.....	-----	5.2
Advance tactical command and control capability.....	-----	2.1
Airborne satellite communication terminal-strategic.....	-----	1.4
Penetration aids for manned aircraft.....	-----	2.3
Reduction of aircraft F-111 squadrons and special activities under military astronautics and related equipment.....	-----	18.0
Decrease from Project 4700, airborne electronic warfare and intelligence quick reaction capability.....	-----	7.2
Reduction in 4 line items including:		
A-X aircraft.....	-----	1.0
Tactical air-to-ground missile (AGM-X-3).....	-----	1.5
Traffic control and landing systems (TRACALS).....	-----	10.0
Military science materials.....	-----	1.0
Decrease of 11.2 of F-111 squadrons and 2.5 of traffic control and landing system.....	-----	13.7
Technical sensor collection reduction.....	-----	2.1

COST OVERRUNS

Mr. WHITTEN. Turning now to cost overruns, your discussion of identified cost shortages of \$1.6 billion to date leaves me with the uncertain feeling that something has been missing in our cost estimating procedures in the last several years. You cite several conditions in justifying this large cost growth. But is it not in effect simply a case of not adequately examining cost estimates before going ahead with a decision to implement a specific program?

Can't you anticipate these increases in cost now that they have been going on as long as they have?

Mr. MOOR. Secretary Laird and Secretary Packard certainly believe we can do a much better job than we have done in the past. We are developing the procedures which will allow us to do a better job. I think also as a part of the problem over the recent years has been the fact that we have not budgeted for economic inflation. Therefore, the somewhat abnormal rate of inflation we have experienced in recent years has, because of the fairly long life of these systems, created a significant problem in terms of cost growth. I think this is an aspect which we need to approach more carefully and perhaps discuss with this committee as to how we can treat that type of a problem in the future.

Mr. WHITTEN. One of the conditions you cite is the change orders which have been incorporated into some of these new weapons systems. I was wondering what your personal opinion is, as the Defense Comptroller, as to whether or not the services should be allowed to proceed into production and deployment of these new systems until designs are complete or systems fully developed?

Mr. MOOR. It is not hard for me to give you my opinion, Mr. Chairman. We think no system should move into production until it is fully designed and until it is ready, and until there is a design stabilization. This is not to say, although we would like to see it, we would expect that there would be no change orders as new technology comes along, but we certainly would like to see a system of minimum

changes. I think Secretary Shillito, if you will ask him tomorrow, can outline the new change order control system that Secretary Laird and Packard are instituting in the Department. I think it is going to be a distinct improvement.

Mr. WHITTEN. You point out in your statement that the Department is going to fund a substantial amount of these cost overruns by reprogramming. I believe the figure for fiscal years 1969 and 1970 is about \$360 million. Does this mean that the fiscal 1969 appropriation and the budget estimates for fiscal 1970 are overstated by this amount?

Mr. MOOT. No, sir, the reprogramming will be done by adjusting the total program and the balance of forces and in the case of the ship-building program, which is where a significant part of the reprogramming, it will be by deletion of specific ships. It doesn't mean we were over-budgeted. It does mean that the new review and evaluation does allow cancellation of certain ships. Secretary Laird believes that cost discipline has to be introduced in order to secure the better estimating and the better management to which you referred a few moments ago.

Mr. WHITTEN. Would it be better to wait until the total amount of these cost overruns is known, say, for a year or two, before reprogramming or appropriating new funds?

Mr. MOOT. Until we get an exact handle on the true amount or the most accurate amount we can have of the total cost, we are, in effect, reprogramming on a cash flow basis, Mr. Chairman. In other words, we are continuing the review in an attempt to get a fix on the absolute cost and until that time we are reprogramming for fiscal year 1970. Therefore, there will be a requirement that will show up in the 1971 budget for either additional reprogramming, additional cutbacks or additional requirements. This figure we have not yet determined because we have not finished the review of the total cost.

SUPPORT OF FREE WORLD FORCES

Mr. WHITTEN. Would you put in the record at this point an analysis of the support of free world forces and also the AID-DOD realignment program updating those which appeared on page 489 of part 1 of last year's hearings?

Mr. MOOT. We will, sir.

(The information follows:)

ESTIMATED AMOUNTS INCLUDED IN MILITARY FUNCTIONS BUDGET FOR SUPPORT OF FREE WORLD MILITARY ASSISTANCE FORCES IN VIETNAM, LAOS, AND THAILAND AND RELATED COSTS, FISCAL YEAR 1970 BUDGET, INCLUDING THE AID/DOD REALIGNMENT

(In millions of dollars)

	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
Military personnel:			
Army.....	118.0	114.2	116.3
Navy.....	.8	.6	.1
Marine Corps.....	15.0	14.8	14.2
Air Force.....	.2	.2	.2
Total, military personnel.....	134.0	129.8	130.8
Operation and maintenance:			
Army.....	605.8	708.0	632.8
Navy.....	43.3	47.5	53.7
Marine Corps.....	6.1	10.7	10.3
Air Force.....	55.0	131.8	157.1
Total, operation and maintenance.....	710.2	898.0	853.9
Procurement:			
Army.....	552.5	1,243.5	927.3
Navy:			
Other procurement.....	5.8	10.2	4.2
Shipbuilding and conversion.....	4.5	6.5	3.4
PAMN—Navy aircraft and missiles.....			.2
Marine Corps.....	68.5	50.8	88.3
Air Force:			
Aircraft procurement.....	36.1	88.1	103.9
Missile procurement.....	.1		
Other procurement.....	67.4	85.4	114.4
Total, procurement.....	734.9	1,484.5	1,241.7
Military construction:			
Army.....	1.7	10.7	
Navy.....	1.9	3.3	
Air Force.....	9.0	1.5	
Total, military construction.....	12.6	15.5	
Grand total.....	1,591.7	2,527.8	2,226.4

AID/DOD PROGRAM REALIGNMENTS

(In millions of dollars)

	Amounts included in military functions appropriations		
	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
Vietnam:			
MEDCAP medicines.....	3.5	3.5	3.5
Medical supplies.....	8.9	6.3	6.3
Railway sabotage replacement.....	3.2	1.6	1.4
Commodity support—GVN police.....	6.3	6.8	6.0
Highway maintenance.....	21.3	23.1	21.1
Air traffic control.....	2.1	3.5	2.6
Ports and waterways, commodity support.....	3.4	.5	
Revolutionary development, commodity support.....	5.5	5.7	5.7
Vietnam television.....	1.3	2.5	3.1
CORDS related air American costs.....		17.0	14.0
Chieu Hai program.....		2.0	2.1
Port handling and off-loading charges.....		7.0	1.0
Total, Vietnam.....	55.5	79.5	66.8
Subsistence consumables and associated air transport costs.....		10.5	9.8
Total, Vietnam.....	55.5	90.0	76.6
APPROPRIATION SUMMARY			
Army:			
Operation and maintenance.....	52.2	64.3	55.5
Procurement of equipment and missiles.....	1.2		
Total, Army.....	53.4	64.3	55.5
Air Force:			
Operation and maintenance.....	2.1	25.7	21.1
Total, Army and Air Force.....	55.5	90.0	76.6

PROJECT PRIME

Mr. WHITTEN. Has Project Prime been fully implemented and what has been the results thus far?

Mr. MOOT. I dealt with Project Prime at some length in the statement. It has been fully implemented. As I indicated in my statement we do believe that the system in its essential parts is a good sound system. We are continuing with it; together with the departments we are making certain simplifications and modifications and we will be advising this committee as soon as we devise a procedure for these modifications.

STAFF OF COMPTROLLER'S OFFICE

Mr. WHITTEN. Mr. Moot, since this will be your only appearance before the committee in connection with the present budget, in connection with the fiscal year 1970 budget we would like to inquire about the budget request for your immediate operation. We note from the justification for Secretary of Defense activities that the average man-year employment of the Office of the Comptroller continues to increase.

The original estimated average man-years of employment for 1969 was 377 which was composed of 359 civilians and 18 military. The revised estimate for fiscal year 1969 is now 404, composed of 382 civilians and 22 military. Will you explain the reason for the increase in employment in your operation this year in view of the requirements of the Revenue and Expenditure Control Act of 1968?

Mr. MOOT. Yes, sir.

If I could have permission to correct the record because I am not quite sure of my figures.

Mr. WHITTEN. We will be glad to have you do so.

Mr. MOOT. The Office of the Comptroller has been no different than any other of the offices of the Secretary in that we have been subjected to the impact of the Revenue and Expenditure Control Act. This means that we have been replacing not three out of four people leaving, but one out of every two leaving. So the impact has been greater on us than it has been throughout the Federal Government.

I think the primary reasons for the change in the statistics that you are looking at is the transfer of the military assistance program audit function from the military departments to the Office of Comptroller. This transfer, which involves 32 man-years, was included in the revised fiscal year 1969 estimate but was not included in the original fiscal year 1969 estimate. If the present estimate of 382 were adjusted by 32 the comparable estimate of 350 would reflect a reduction of nine from the original estimate of 359.

Mr. WHITTEN. Since you do occupy the position of Comptroller, if such a reduction showed up in the services from which these assignments were made, you will furnish that information?

Mr. MOOT. Yes, sir.

(The information follows:)

Of the 32 man-years (and spaces) transferred 22 were from the Army and 10 from the Air Force.

Mr. WHITTEN. You are projecting a slight decrease in employment in 1970, from 404 to 392. Do you believe that this will materialize in light of past experiences?

Mr. MOOT. I have no doubt that we will have less people at the end of 1970 than we have now.

ELIMINATION OF CONTRACT MANAGEMENT STUDIES

Mr. WHITTEN. Funding for your immediate operation is decreasing by \$1,490,000 in 1970, from \$9,047,000 to \$7,557,000. This is due to the elimination of all management studies. Did you decide to have all your management studies made in-house in 1970?

Mr. MOOT. It was not a deliberate decision, although we have been making greater use of our in-house people for management studies. It was basically in General Carter's area where we moved to a new approach in ADP management, focusing on overall DOD requirements. Here we are taking a greater look at what is called software programs as related to hardware programs, and we are doing this largely in-house because we want to make sure of exactly what we want.

We are attempting to become more hardware independent, so that programs that are developed can be used on any computer or any range of computers of appropriate size and configuration, so we are not in a sole source position. This means that we would like to have stocks of software programs that are used by one part of the Defense Department, on the shelf, capable of being used by others, to get transferability of programs. This changed our approach to ADP management and in this area we had programed some outside use of funds which we are not currently planning.

Mr. WHITTEN. Since 1969 the Office of Comptroller requested \$1,530,000 for study of computer adaptation, utilization, and management. What is the current status of this study?

Mr. MOOT. This is the program that I just covered, Mr. Chairman.

Mr. WHITTEN. To what operations or activities were these funds reprogramed?

Mr. MOOT. \$1,143,000 was transferred to the Defense Supply Agency to relieve a deficiency in O. & M. funds that would have required placing some of that Agency's personnel on furlough. The remaining \$387,000 is being used as originally planned for an operational test of full text retrieval in the Pentagon and for remote terminals. The committee staff was advised when the reprogramming action was taken.

CONTROL OF ADP SYSTEMS

Mr. WHITTEN. In our hearings last year we had quite a discussion with representatives of your office about the management of automatic data processing operations in the Department of Defense. You discussed management responsibility on pages 34 through 36 of your statement. I believe the committee was advised last year that your office would assume responsibility on July 1, 1968, for all facets of ADP management.

Can you explain why it now takes two separate organizations, one under the Assistant Secretary of Defense, Installations and Logistics, and the other in your office, to review and control the implementation and operation of ADP systems in the Department of Defense?

Mr. MOOT. I would like General Carter, if I may, to answer that in detail. Basically it is a question of the Comptroller sharing the

responsibility for review of certain functional data systems with appropriate DOD functional managers. We have the control over the decision for the acquisition of the hardware, but the functional system design for many systems is under the research director, Dr. Foster, or the Assistant Secretary for Installations and Logistics or for manpower.

General CARTER. Yes, sir; if I may. Our office serves as the Department of Defense focal point for matters concerning automatic data processing management. Based upon the various Department of Defense inputs, we coordinate and control the Department ADP program in total.

As an example of the coordination between our office and various OSD functional managers in monitoring systems planning and development, Dr. Foster examines computer requirements for command and control systems, for which he has primary responsibility. Similarly, computers provide vital support in a number of other functional areas, such as intelligence and weather forecasting. In order to formulate a meaningful total program of work, functional specialists in these areas must have enough understanding of computers to intelligently review and approve plans for their use.

Therefore, there are people who have knowledge of computers in other parts of the staff.

Mr. WHITTEN. Will you explain the difference between the management procedures of your office and those of the offices of the Assistant Secretary of Defense for Installations and Logistics.

General CARTER. Let me first describe our management responsibilities and how we carry them out.

We have formed an automatic data processing policy council with membership from every office that has an interest in the use of automatic data processing equipment. This is to make certain that everyone in DOD knows what everyone else is doing and that all of the people address their total job from a common point of view. I serve as the chairman of this committee. In addition to this, we are asking the functional managers to examine the functions in their particular areas of interest which use computers, with our people at their side, to make certain that the plans for their use are realistic and likely to result in benefits for the Department. This is very actively done, as Mr. Moot said, by the Assistant Secretary for Installations and Logistics.

Mr. WHITTEN. What is your responsibility as Deputy Assistant Secretary of Defense for Information in the management of ADP systems?

General CARTER. I have overall policy responsibility for the Department. Other offices have an interest, as I have said.

REVIEW OF ADP SYSTEMS

Mr. WHITTEN. How much review did your office actually give to the expansion of existing ADP systems or the implementation of new systems before they were approved?

General CARTER. We did it in three major ways, sir, in rather considerable depth over the year. The first such review was the one Mr. Moot spoke about in his statement, in which the Assistant Secretary for Installations and Logistics, Mr. Moot, and corresponding people from all of the services and agencies spent the better part of three

days reviewing in depth all of the computer-based logistics systems that were then under development in the entire Department.

As a result of that review, decisions were made as to which efforts should continue, which should be held back and so on. Beyond this, we did a very intensive review in the budget, far more extensive than has ever been done before, in which we looked at prior-year history for major data systems, and a 5-year future projection of plans with dollar and manpower implications to get some idea of where these things were all going. Having done that, we then very carefully focused our attention in the areas that were going to use the most resources and were the most significant dollarwise. We followed this up with a number of field visits to the sites where the actual work of designing data systems and putting them on a computer was being done. We reviewed in detail with the design people how they were going about it and what their time milestones were, we assessed how competent they appeared to be, and we looked at all of the other things that were of interest in appraising the realism of the plans.

These field visits are still continuing, and the budgetary review which is scheduled for this fall will be conducted in even more depth than it was last year. I believe, Mr. Chairman, that this has been a very intensive review.

Mr. WHITTEN. How could these relatively few people review the 30-some systems which are being expanded and implemented by the services and determine whether they are compatible with existing systems in the services?

General CARTER. The systems that need review fortunately are at different stages of maturity. Some of them are at a stage where hardware has already been bought and there is a prototype in being. Others are in the design phase, and hardware acquisitions are still some distance away. Certain others are in a conceptual stage. If you put them on a calendar, the points at which each of these systems should be reviewed are spread over time. It is not necessary to sit down and do everything all at once as you might think.

COMMITTEE RECOMMENDATION ON ADP SYSTEMS REVIEW

Mr. WHITTEN. What is your interpretation of the meaning of the committee's report of last year which states that—

Although pleased with the effort that is being put forth in the review and control of these management systems, (computer systems) the committee believes that until such time as these newly established offices have had an opportunity to review the various systems now in existence, and those being planned for the future, expansion of all systems should be held in abeyance.

General CARTER. Sir, our interpretation was straightforward. We thought we understood exactly what the committee wanted. Our interpretation was that your committee wanted my office and similar offices that existed in the military services to examine every one of these systems that were planned, to determine to our own satisfaction that it made sense to continue them, that they were going to serve a useful purpose, that they were worth what they were proposing to cost, that there were benefits involved in going ahead. Then having satisfied ourselves that this was so, we could give authority for the continuation of the program.

Mr. WHITTEN. Do you feel that you carried out that interpretation?

General CARTER. I would not like to give you the impression that we did a perfect job. We concentrated our efforts on the systems which were going to have the highest resource impact. We think we did a pretty thorough technical review of these systems.

As Mr. Moot said, in connection with the review of the budget estimates for fiscal year 1970, the requests of the services for funds to expand systems were reduced by \$141 million. We think this is a fair indication of a pretty good review.

Mr. LIPSCOMB. Mr. Chairman.

Mr. WHITTEN. Mr. Lipscomb.

FOLLOW-THROUGH ON COMMITTEE RECOMMENDATIONS

Mr. LIPSCOMB. All during the hearings so far, we have repeatedly come across new systems or conversion to second and third generation systems. It does not appear to us, at least from what we have heard in the hearings, that there has been any change or any look-see at any of these new systems. It looks like business is conducted as usual, even though this language was in our report last year. How can we get the feel that you really have looked at these systems and have held in abeyance any increase in them pending this survey.

Do you have any documents?

General CARTER. Can I document that we have held systems in abeyance? I could provide for the record a list of systems currently suspended pending further work to satisfy us that they ought to go ahead. There are such systems.

Mr. Moot. From a practical viewpoint, Mr. Lipscomb, the best evidence is that the requested budget increase is lower than it was last year for the first time in years. The \$141 million that General Carter referred to that had been removed from the budget request did result in a lower increase for the first time in years for the overall ADP requirements of the Department.

I think General Carter would like to address the second or third generation equipment, because there are opportunities for saving in certain of these replacements of older leased equipment.

General CARTER. I would like to very much, sir.

ADP SYSTEM REVIEWS

Mr. LIPSCOMB. Before you leave that subject, do you have any record of the surveys that you made on the different systems that conform with the suggestion of this committee in our report?

General CARTER. Yes, sir; I would be glad to provide a description for the record, if you like.

Mr. LIPSCOMB. Of what procedures you went through to look at these.

General CARTER. Yes, sir.

Mr. LIPSCOMB. I think that would be helpful.

(The information follows:)

The Office of the Assistant Secretary of Defense (Comptroller) conducted two types of formal ADP system reviews during fiscal year 1969. One was in conjunction with the overall review of the Defense budget requests; the other was based upon a series of field visits focusing upon the technical aspects of systems design and implementation.

First, a special review of automatic data processing was conducted in conjunction with the fiscal year 1970 budget review. To support this review, a supplementary budgetary submission was required of each Defense component, showing requested fiscal year 1970 total obligating authority for major ADP systems and installations. Historical data for fiscal years 1968 and 1969, and planned costs for fiscal years 1971 through 1974, were reported as well. Summarizations of costs and tangible benefits were also required for major systems in order that we could be sure that we will gain more than we are investing. If tangible benefits could not be shown, we wanted to satisfy ourselves that the ADP application in question is adequately justified in other ways, such as necessary computer support for critical mission requirements.

This review was accomplished by the OASD(C) ADP management staff, with assistance by functional staffs in the Office of the Secretary of Defense. A close relationship was maintained with the budget analysts in our office and the Bureau of the Budget. Based upon the data submitted by the services and agencies and the prior knowledge of our ADP management staff, decisions were made to expand, reduce, or maintain ADP systems.

Because of the short time available and the broad scope of the problem, this review necessarily concentrated on the larger ADP systems.

In some cases, it was specifically directed that a system not be expanded. In other cases, approval to extend the system was deferred until evaluation and approval of the prototype installation by our office.

Secondly, following this overall and necessarily brief review of ADP systems, we began a program of in-depth visits to field activities, with initial emphasis on those performing development work for ADP systems to be used at multiple activities. These visits, made in cooperation with the OSD functional managers, are examining the soundness of the basic system to be implemented as well as the techniques to be used in development and operation. They are also providing us with a better base of information on requirements and capabilities which will be useful for planning and evaluating future systems.

General CARTER. I would like to assure you that we made every effort to comply with the suggestion of the committee. One of the reasons, sir, that you get the feeling that we have a lot of new systems is that for the first time in many areas we are developing standardized data systems that span an entire organization such as the entire Army Materiel Command, or the entire U.S. Army. In other words, they are standardizing a system within the Army or within the Air Force, and they have given it a name. Before that time the same functions were performed by many different systems, which lacked visibility. First, we are going to get the benefits and economies of a standard system, since all system users and operators in a service will have similar training and experience. Second, I think it was mentioned that it is important that we use the new third generation hardware. In most cases it will do the work more cheaply than the older computer equipment which we have been using. We are encouraging the services and Defense agencies in every case where they can show savings by going to new equipment to do so.

This permits reductions in operating personnel; it does the work in less time and so on. It would be wasteful for us not to move in the direction of economy that way.

REDUCTION IN 1970 REQUIREMENTS

Mr. LIPSCOMB. You mentioned a \$141 million reduction; where is this reduction applicable—to O. & M. or to procurement, or where?

General CARTER. This reduction was primarily O. & M. and R.D.T. & E.

Mr. LIPSCOMB. If the reduction was made in O. & M. and R.D.T. & E., did procurement go up?

General CARTER. No, sir. The reduction of \$141 million also includes some reductions for procurement appropriations. We did not move these costs out of O. & M. and R.D.T. & E. because we were going to buy equipment. We simply denied the request to do the particular thing that was contemplated. So there would not be any equipment rented or people paid depending upon the nature of the requirement.

Mr. LIPSCOMB. I may be wrong, and I may have the wrong viewpoint, but I think this ADP is way out of line and reason. Sometime we will have to come to a system that will at least last a year before we have to install another generation. I am overstating the case, but this is the way it looks. It is the same way in communications. Every year the committee hears about a different communications system and we never seem to have anything that really works or is completely operational.

Mr. MOOT. I do not think we disagree with the problem as you stated it, Congressman Lipscomb, and that is exactly what we are trying to do, to get a longer range system requirement and be able to look at ADP in terms of a 5-year program.

PROJECT LITE

Mr. LIPSCOMB. Earlier today the question came up about the LITE program, and you were going to put the answer in the record. Here is a program that starts with a second and third generation computer, and new rental equipment. Is this really necessary to go ahead with at this time?

General CARTER. You have really two questions, one is the worth of LITE itself and secondly, the worth of updating it as you have outlined. You will find the question of the retrieval of legal information to be a matter of some controversy. Some lawyers feel one way about it and some feel another way. However, I would like to point out that today there are two commercial concerns which are providing legal services to the general legal fraternity for payment. I would take from this that their customers consider it is worth paying hard cash to get a computer assistance in the retrieval of legal material.

Mr. LIPSCOMB. You mean these commercial concerns have something to do with the Department of Defense?

General CARTER. No, sir, I am speaking of a service for private attorneys in the State of Ohio. It is done for profit and lawyers are willing to pay for it. I believe that demonstrates the worth of what we are doing. As to the use of the new computer, we have been using for some time a second generation system which has been doing a good job but it is limited in its throughput capabilities.

Reprogramming to enable the LITE system to make full use of the more efficient third generation computer equipment will increase its processing capacity and, therefore, its responsiveness to user demands, and will make possible significant reductions in per unit costs of operation.

PRIORITIES FOR SYSTEM REPLACEMENTS

Mr. LIPSCOMB. This is all bearing on the point of priorities, what we need and what we can use, can the Defense Department get by with a second generation computer until we can compete with private industry or something like this.

General CARTER. Our basic motivation in looking at the proposed new system replacements is, one, does this job have to be done at all? Secondly, is doing it on the computer the best possible way to do it? Third, is it going to be worth the cost? Are we going to get something for what we are doing that is worth more than the money we are paying? If the answer to that one is no, then we really have to have some extremely high order of justification to do it, such as a military requirement.

Mr. LIPSCOMB. I would raise a question on your first point: "Does the job have to be done at all"?

General CARTER. That question always has to be raised.

Mr. LIPSCOMB. If computer manufacturing people are putting the pressure on the Department of Defense just to sell items like they are trying to sell items overseas then someone needs to resist. They have moved into East-West trade and are supplying items which are on the Communist shopping lists trying to make a buck. If they are using pressure on the Department of Defense then we have to have some resistance.

General CARTER. We have excellent resistance built into our system. We have centralized in each military department the point to which the proposal to acquire a computer has to come for approval. It has come to the level of the Assistant Secretary (FM) in Army and Air Force, and the Special Assistant to the Secretary of the Navy. No one out in the field is allowed to make the decision that he can obtain a new computer or replace an older one. It has to come to the central approval authority.

COST OF ADP SYSTEMS

Mr. LIPSCOMB. On this cut of \$141 million, was that from the original budget request or was it cut from prior year funds?

General CARTER. This was cut from the budget request for fiscal year 1970 from the services and Defense Agencies.

Mr. LIPSCOMB. What was the request?

Mr. MOOT. We estimate it was about \$1.4 billion. I say "estimate" because our present accounting and budgeting structure does not identify ADP costs in all appropriations. We do have ADP costs in the O. & M. appropriation, however, and we have observed a consistent historical relationship between this O. & M. figure and the annual projection of total ADP costs collected through the ADP management information system established by the Bureau of the Budget. The \$1.4 billion figure assumed this relationship would continue. After our \$141 million reduction, the fiscal year 1970 ADP budget is approximately \$1.25 billion.

Mr. LIPSCOMB. \$1,250,000,000 for ADP?

Mr. MOOT. You must remember, Congressman, when we talk about the cost, we are looking at all aspects of the cost. About half of this is for pay of Defense people, including military, and about half external in terms of contractual, support, and ADP maintenance or leasing.

This is the very reason that we are vitally interested in closer and improved management in this area. That is the reason why improved management has a significant cost impact. On the other hand, \$141 million is a significant percentage of the total program.

Mr. LIPSCOMB. I realize you are working on it and dedicating yourself to it but I think it was so far out of line that we have to take drastic action to bring it back into line.

Mr. MOOR. I do not think you can be drastic overnight unless you are going to bring basic programs to a standstill. For example, 60 percent of the ADP installations in the Department support on-going logistics programs or R. & D. programs. They are in constant use for those programs. I think there is little doubt but that the functions need to be done. Whether they are being done the right way or the best way is what we consider a part of our job.

LMI REPORT ON CONTRACT AUDIT/CONTRACT ADMINISTRATION INTERFACE

Mr. WHITTEN. The Logistic Management Institute recently issued a report on their study of the interface between contract audit and contract administration.

What is your opinion of their recommendation that these operations be consolidated in one organization?

Mr. MOOR. Deputy Secretary Packard has asked me to give him a recommendation based on consultation with Assistant Secretary Shillito, the Assistant Secretary for Financial Management of the Navy, and the Installations and Logistic Assistant Secretary of the Air Force. It is my personal opinion that the recommendation does not have merit. We have not yet given Secretary Packard our joint recommendation because we have not finished.

WARTIME SPENDING

Mr. WHITTEN. Thank you, Mr. Secretary. This is not made as any accusation or charge, I want you to understand that, human nature being what it is. With all the statements about moving the 25,000 men out and the necessity to get out of South Vietnam honorably, and other statements to the effect that unless this thing is resolved satisfactorily by next spring we can look for a whole lot of other things. I cannot help but wonder if some of our folks in the military want to get all the new stuff while the getting is good. If we get out of South Vietnam, the money might be hard to come by. Your budget seems to indicate that before the public wakes up and does something about inflation, it looks like you have your hand out and are getting all the new stuff. It is over-simplified but that is what you have to answer in this budget because it sticks out like a sore thumb.

Earlier testimony says if we do turn all this equipment over to the South Vietnamese, we will turn over only the old equipment so they will know how to use it. In World War II they told me that all wars are fought with obsolete or obsolescent material or equipment because the newest is always still on the drawing board. You can have lunch to think over that one. We will stand adjourned until 2 o'clock.

AFTERNOON SESSION

Mr. WHITTEN. The committee will come to order.

SEMINAR OF DEFENSE PROCUREMENT

Mr. ADDABBO. Mr. Secretary, I received a copy of a memorandum from the office of Congressman Cohelan of California as prepared by

members of his staff. It relates to a seminar which was held back in March 1969 relative to the question of defense procurement with a response by the Institute of Policy Studies.

At this seminar the main speaker was the president and vice president of the Performance Technology Corp. of Massachusetts. They raised several criticisms and suggestions. One of the questions is, is it true many corporations compute into their investments a good deal of government-owned capital and plant items?

GOVERNMENT-OWNED FACILITIES

Mr. MOOT. No, sir, it is not. If we are discussing the addition of government-owned facilities into company costs for the purpose of including such costs in the cost base for profit calculations, all government-owned facilities are excluded from such costs. As a matter of fact, government facilities are treated in one of two ways with government contractors, either they rent them and pay rental costs to the government or else they are excluded from all costs in terms of being furnished by the government without cost, so I do not think this is a correct statement.

COST OVERRUNS RESULTING FROM LACK OF COMPETITION

Mr. ADDABBO. They further say there was a study of over 1,000 Air Force contracts with the cost-plus incentive fee feature, and the average price paid was over 337 percent of the original estimated procurement cost and these runaway costs, they claim, were because of a lack of effective competition, or competition substitutes. Was this question ever looked into?

Mr. MOOT. Yes, sir. This is quite a complicated area to speak to briefly. As you know, cost growth is a combination of several aspects of procurement. One is the need to make changes over a long period of weapons production life as technology increases. Two is the need to recognize a general trend of wage and price inflation and three, there has been a tendency, as has been stated by Procurement Secretary Shillito, for contractors to be somewhat optimistic in their bidding prices, particularly on cost-plus-incentive-fee contracts, and for the military services to be somewhat optimistic concerning the cost.

I am sure Secretary Shillito can go into much greater detail tomorrow, but it is true that the weapons systems acquisition process of the Defense Department, because of the fact that it covers a period of 5 to 7 years for a particular weapon, does have certain factors which will build cost growth.

The need for change over that period of time, the needs to recognize inflation are just two of the various reasons why systems cost more in the final analysis than they were estimated to cost in the beginning.

Secretary Laird has instructed that we change our cost estimating process and we will change it for the out years. This relates to my point this morning as to how we can change our immediate budget process in order to account for the next year's economic change in terms of inflation. We haven't licked it yet, but we are working on the problem.

Mr. ADDABBO. Has there been a study made or is there a study now in process or is there any proof positive that in several instances the Defense Department, to insure the continuation of inefficient con-

tracts, because the contractors involve some aspects of national security, has shored them up by allowing contract overruns?

Mr. MOOT. Nothing that I know of, Congressman. I know of no such instances.

CONTROL OF CONTRACTOR OVERHEAD COSTS

Mr. ADDABBO. When we held hearings relative to the ABM, there was a cost item of overhead discussed. Now, is overhead controllable, the cost of overhead? Is it in any way controllable?

Mr. MOOT. I assume you are referring to contractor overhead.

Mr. ADDABBO. Yes.

Mr. MOOT. Yes, the question of overhead is one that is addressed in our defense contract audit agency approach whereby they are required to review each year the general overhead pool of the contractor and to insure its validity both in terms of its application to defense work and its relationship to the past overhead trend of that particular company so what we try to do is to keep under review and under control the general overhead relationship to direct productive work of all of our big defense contractors doing cost-based contract work with us.

Mr. ADDABBO. Does overhead automatically increase when direct labor costs increase?

Mr. MOOT. Overhead has a tendency to increase with labor, but not in proportion to direct labor. If there is a significant increase in direct labor, there should be a disproportionate increase in overhead.

Mr. ADDABBO. Isn't it a fact that some contractors add to their direct labor charges costs which should actually be indirect charges?

Mr. MOOT. There may be. If so, I don't know of any outstanding instances, Congressman, and of course, again, it is a function of the Defense Contract Audit Agency to determine this and, as you know, all of the large defense contractors have resident audit offices with our people sitting in their plants reviewing the accounting and the direct costs incurred, as well as the overhead pool.

Mr. ADDABBO. One of the examples which was brought to my attention was that a photocopy might be either a direct or indirect item, but they always charge it off as a direct item.

Mr. MOOT. In order that there can be an overhead application.

I think that that is an area that the auditors are constantly alert to. Whether they are abreast of all of them or not, I couldn't say, but it is something that they watch very closely.

CONTROL OF DEFENSE CONTRACTOR COSTS

Mr. ADDABBO. Would it be possible to engage industrial management analysts at the defense contractors factories so these analysts would set standards by which efficient performance could be measured and then the Government would only be required to pay for standard, efficient production and the contractor would take the risk for inefficient operations?

Mr. MOOT. I think we would have to move much further in the area of controlling defense industry before that would be too feasible, Congressman. This gets to the should-cost type of costing where the government goes in and says:

If you were running an efficient operation, by our standards, this is what this product would cost, and therefore this is all we will pay.

This has been done in certain extreme cases. It is a little difficult for the Defense Department to have the type of expertise in every production line or every product line for this to be very widespread, and, of course, it does mean that you are controlling to a very high degree defense industry, closely approximating the kind of a regulated industry whereby you will set the regulated rates in advance.

C-5A COST OVERRUNS

Mr. ADDABBO. In view of the tremendous overruns we have been reading about and that have been testified to—and one of the prime examples is the C-5A as compared to the Boeing 747—the C-5A was supposed to cost us \$20 million and now it is expected to cost \$42 million and the Boeing 747, which was estimated to cost \$20 million will now only be costing \$22 million, an overrun of only \$2 million as compared to almost \$25 million for the C-5A. From what I have been led to believe, that the 747 design was similar, or the design which was offered in competition to Lockheed's C-5A, here we have the difference of a Government plane costing \$25 million more than the civilian production with a \$2 million overrun.

Mr. MOOR. I would like to suggest that perhaps those figures need looking at, Congressman.

The C-5A, while it is still an estimated cost system in view of the fact that very few of the aircraft have yet been delivered, does price out for the aircraft in the 1970 budget that you are looking at, at nearer \$25 million per aircraft.

I think the deputy, particularly Deputy Secretary Packard, has a feeling our cost/growth problem is primarily one of the technical aspects of the systems we have been buying; namely, as was mentioned earlier this morning, the need to be sure that we have fully developed and solved our engineering problems before we go into production rather than any loose cost control. It is not that we are not tightening up on cost control and management control, but I think in general it is the feeling of Mr. Packard that the technical problems have been the primary source of cost growth.

SYSTEMS INTEGRATION

Mr. ADDABBO. Yesterday in our hearing on the ABM there were three separate items discussed with several million dollars provided in each item for integration of the manufacture of each item. Could not there be some system of a single manager, or way of integrating all these, rather than each system itself having its own cost for integrating the systems?

Mr. MOOR. Most systems—and the reason I was hesitating, I was trying to recall the Safeguard system—most systems do have a project manager whose job it is to integrate ground equipment with the weapons system itself, and with the spare parts. I do believe that General Starbird, for example, is responsible for all aspects of the Safeguard system whether it is military construction, site acquisition, ground equipment, or for production of any of the missiles.

Mr. ADDABBO. It was testified that each item has its own separate figure to integrate that system. It was not integrating the three of them together, but integrating the one particular system. I wondered if they couldn't get one to oversee the whole thing?

BEST AVAILABLE COPY

Mr. MOOT. With your permission, Congressman Addabbo, I will check that and I will make sure that the record gives you a proper response.

(The information follows:)

I have checked with the Army and have additional information concerning the integration of the Safeguard system. As I stated before, the Army as the single manager is responsible for the control and direction of all resources made available for deployment of the Safeguard system. The Army has selected the Western Electric Co. (WECO) as the prime contractor and charged them with the overall direction of the production and installation of the system hardware. WECO supervises the first tier subcontractors and insures that their effort is integrated with the deployment plan. The Army's budget presented to the Congress includes, in the P-1 exhibit three lines concerned with missile and radar hardware. These are Sprint, Spartan, and ground equipment. It has been OSD policy to charge a portion of the overall management and system integration effort to each of the major hardware components. For this reason, the integration appears three times in the Safeguard budget presentation.

CONTRACTOR CHARGING PRACTICES

Mr. ADDABBO. Is it true that the contractor charges off items purchased from subcontractors at the time they reach the contractor and not when they are actually used in the manufacture of the item being produced?

Mr. MOOT. Generally speaking, contractors do charge to the Defense prime contract upon delivery from subcontractors rather than when applied into the work in process. That is generally true.

We have been moving in our accounting and control instructions toward the applied direct cost theory which means that costs can be charged to Government prime contracts only when material is introduced from inventory into the process.

Mr. ADDABBO. You mentioned in your discussion the question of "should cost" analysis—has this been studied?

Mr. MOOT. Yes; and I think Secretary Shillito will testify to that tomorrow, that the "should cost" principle has as good application when the system is right and the environment is right for its use and it has produced, certainly, significant savings, when used.

REDUCTION IN 1970 DEFENSE BUDGET

Mr. ADDABBO. Mr. Secretary, I have received from almost 100 of my colleagues a petition that I present a request for an across-the-board cut of somewhere between \$5 and \$10 billion. Would you give us your idea of what would be the general effect of such a cut?

Mr. MOOT. Yes.

Mr. SIKES. I think it would be interesting to have a brief comment at this time and possibly you would want to expand on it for the record. We are all interested in obtaining a cut of that dimension if we can possibly do so without serious injury to the defense effort and, of course, there are those who think that it could be done, and maybe it can.

It is our job to explore and to seek to determine whether cuts in that area are sufficiently realistic to be worthy of consideration.

Would you give us a brief comment and then elaborate to any degree that you wish for the record?

Mr. MOOT. Yes, sir. I appreciate the chance to make a comment which I can later expand upon.

I think the Department feels without question—and certainly I do—that any reduction of that magnitude has to be accompanied by a curtailment of our commitments. In other words, we cannot match necessary forces against our current commitments with a cut of that magnitude.

I think I can illustrate the situation we're in financially very simply. If we set aside the cost of Southeast Asia, which we have been separately reporting to this committee each year, and look at our procurement programs on a constant-dollar basis from 1964, the prewar year to now, we find that the procurement program which was \$15 billion in 1964, in 1964 dollars as you are looking at it now in the 1970 budget, on a nonwar basis, is \$11 billion. It has gone down sharply.

Now, what has this meant? It has meant that we have deferred programs. It has meant that the average age of our ships, for example, has increased from 15 years in 1964 to over 17 years in 1969, with 58 percent of the ships being over 20 years old in 1969—compared to 35 percent in 1964. It means that our tactical Air Force is seriously imbalanced in terms of our general-purposes forces. It means we have had to further reduce just to make room for statutory increases of \$1.5 billion, for example, in retired pay, an element of our budget which is not controllable.

From a level of about \$1.2 billion in 1964, we are now paying in this same budget arena \$2.7 billion for retired pay. These things mean that actually, even though it was partially deliberate, in order to keep the pressure down on the economy during this period of time, we have seriously backlogged and deferred military construction and weapons system acquisition, and many important programs therein.

Therefore, to add a \$5 billion reduction on top of last year's \$6 billion NOA reduction and \$3 billion outlay reduction means to me, as a comptroller—because we have spent a year searching for places to make reductions—it means that we almost have to cut back forces, which means we have to either curtail or take a calculated risk in meeting our international commitments.

That is a brief answer, sir, if I could expand upon that.

Mr. SIKES. You may expand it for the record.

(The information follows:)

IMPACT OF A REDUCTION OF \$5 TO \$10 BILLION IN FISCAL YEAR 1970 DEFENSE PROGRAMS

As a practical matter, the reduction would have to be applied to non-Southeast Asia programs. So long as American forces are engaged in combat, their support must be a matter of first priority within the Defense budget. Should operational developments make it possible to reduce SEA costs, this would, of course, be reported promptly to the Congress. At present, we have no basis for reducing our estimates of SEA costs for fiscal year 1970, so we must approach the question in terms of the estimates for non-SEA programs.

In addition, payments to retired military personnel are based on a statutory formula, and should be reflected separately.

Data for the three parts of the Defense budget (SEA costs, retirement pay, and other programs) are summarized in the following table:

	(Outlays in billions of dollars)			
	1964 in 1964 dollars	1964 in 1970 dollars	1970 estimate	Change in 1970 dollars
Southeast Asia.....			24.9	+24.9
Retired pay.....	1.2	1.5	2.7	+1.2
All other.....	49.6	59.7	50.3	-9.4
Total.....	50.8	61.2	77.9	+16.7

Defense programs (other than SEA and retired pay) in the fiscal year 1970 estimates are \$9.4 billion below the fiscal year 1964 level. It will be noted that about 38 percent of the cost of the war (\$9.4 billion is 38 percent of \$24.9 billion) has been financed by cutbacks in non-Southeast Asia programs.

The effect of reductions of \$5 billion to \$10 billion in the non-SEA and non-retirement portions of the budget are summarized as follows:

(Dollar amounts in billions)

Outlays:	Amounts
Fiscal year 1964 program level, in fiscal year 1964 dollars.....	\$49.6
Fiscal year 1964 program level, in fiscal year 1970 dollars.....	59.7
Fiscal year 1970 program level, in present budget request.....	50.3
Fiscal year 1970 level with reduction of—	
\$5,000,000,000.....	45.3
\$10,000,000,000.....	40.3

In constant fiscal year 1970 dollars, then, a reduction of \$5 billion would produce a level of \$45.3 billion—nearly a 25 percent reduction below the fiscal year 1964 program level (\$59.7 billion) in real terms. A \$10 billion cut would yield a \$40.3 billion level—a reduction of nearly one-third from the fiscal year 1964 level.

Reductions of this order of magnitude in our non-SEA programs are totally out of line with our military requirements. The threats which we face, and the commitments essential to our security, have not been reduced since fiscal year 1964. Thus, any such reductions would be far beyond normal budgetary adjustments, and would necessitate a major strategic reassessment.

It will be noted that the fiscal year 1970 request itself involves a large reduction (\$9.4 billion, or 16 percent) in constant-dollar terms from the fiscal year 1964 level. This reflects a continuation of policies to defer modernization and other programs, to minimize the economic impact of the war. These deferrals cannot be continued indefinitely. The gap would be even greater, except for selective program increases requested for non-SEA programs from fiscal year 1969 to fiscal year 1970. These increases amount to \$5.1 billion in total obligational authority (TOA) and \$3.4 billion in outlays. These outlay increases are included in the fiscal year 1970 figures presented above. That is, fiscal year 1970 outlays are \$9.4 billion below the fiscal year 1964 level. Without the increases requested from 1969, the fiscal year 1970 program would be \$12.8 billion below the fiscal year 1964 level.

The increases proposed in non-Southeast Asia programs from fiscal year 1969 to fiscal year 1970 are as follows:

(In millions of dollars)

	<i>Total obligational authority</i>
Shipbuilding has been sharply cut back to minimize the economic impact of the war. The fiscal year 1969 program is less than half the prewar (fiscal year 1964) level, in constant dollars, and the fiscal year 1968 program was also very low. The age of the fleet is increasing sharply—58 percent of the ships exceed 20 years of age in 1969, versus 35 percent in 1965. The average age has increased from 15 to 17 years over the period. The increase includes \$138,000,000 for the FBM program and \$1,546,000 for high-speed SSN's; the nuclear carrier (CVAN); fast-deployment logistic ships (FDL); new type frigates and destroyers (DX and DXGN); and amounts for claims and cost growth—total increase.....	1,684
Aircraft procurement was \$6,171,000,000 in fiscal year 1964 and \$5,808,000,000 is requested for non-SEA aircraft procurement for fiscal year 1970. In constant dollars, the fiscal year 1970 program is at least \$1,300,000,000 (nearly 20 percent) below the prewar level, even after an increase from fiscal year 1969 of.....	1,100
For all other procurement the estimates are \$7,172,000,000 in fiscal year 1969 and \$7,518,000,000 for fiscal year 1970, an increase of \$346,000,000, or 4.8 percent. It might be noted that the budget is priced in detail in summer 1968 prices—the apparent increases will disappear as deliveries are paid for in fiscal year 1970 and fiscal year 1971 prices. The fiscal year 1964 level was \$6,888,000,000; the fiscal year 1970 estimates are \$630,000,000 higher in current dollars, but over \$400,000,000 below the fiscal year 1964 level in constant dollars.....	346

[In millions of dollars.]

Total
obligational
authority

For operating costs (military personnel and operation and maintenance) the increase is \$740,000,000. This includes \$285,000,000 for retired pay, a statutory item; \$250,000,000 for Guard and reserve programs; and \$205,000,000 for all other programs. This remaining increase of \$205,000,000 is well under 1 percent of the nonpay costs of these appropriations, and will obviously be far more than offset by price increases from the summer 1968 base to 1970. In real terms, these programs are declining from fiscal year 1969 to fiscal year 1970. Since fiscal year 1964, non-SEA O. & M. costs have increased by \$1,400,000,000 in current dollars. In real dollars, however, there is a decline of over \$2,000,000,000, allowing for pay and price increases and stock fund extensions-----	740
For R. D. T. & E., an increase of \$712,000,000 is requested from fiscal year 1969 to fiscal year 1970. This includes \$235,000,000 for strategic forces and \$477,000,000 for the items detailed in the statement. The R.D.T. & E. program excluding SEA is projected at \$7,556,000,000 for fiscal year 1970, compared with \$7,057,000,000 for fiscal year 1964. In real or constant-dollar terms, however, the fiscal year 1970 program is about \$1,000,000,000 below the fiscal year 1964 level-----	712
For military construction, an increase of \$418,000,000 is requested for fiscal year 1970. Like shipbuilding, this program has been sharply reduced to minimize the impact of the war. The fiscal year 1969 program in constant dollars is about 15 percent below the fiscal year 1964 level, and the fiscal year 1967 and fiscal year 1968 programs also average about a 15 percent drop in these terms. The fiscal year 1970 program is \$1,393,000,000 compared to \$981,000,000 in fiscal year 1964. In real terms, the increase is about 20 percent and is aimed at meeting the more critical of the major backlogs that have developed over the past few years-----	418
For all other programs, increases of \$70,000,000 are requested. This is an increase of about 5 percent from the fiscal year 1969 level, but a decrease of over 30 percent in real terms from the fiscal year 1964 program-----	70
Total TOA increase requested, fiscal year 1969 to fiscal year 1970, for non-Southeast Asia programs-----	5, 069

TO SUMMARIZE

A reduction of \$5 billion to \$10 billion in outlays from the fiscal year 1970 request would mean that non-Southeast Asia programs would be reduced by from one-fourth to one-third below the fiscal year 1964 (prewar) level, in real (constant dollar) terms. Such a reduction would obviously entail a major strategic reassessment.

The fiscal year 1970 estimates as submitted involve a reduction of \$9.4 billion from the fiscal year 1964 level for non-SEA programs, in real (constant dollar) terms. This is the situation after taking account of selective increases requested from the fiscal year 1969 level.

In all but two areas—shipbuilding and military construction—the fiscal year 1970 program levels proposed are far below the fiscal year 1964 (prewar) level, in real terms. In shipbuilding and military construction, slight increases above the fiscal year 1964 level are proposed. These programs have been held at very low levels—the shipbuilding program for fiscal year 1969 is well under half the prewar level—and these low levels cannot be continued.

It is important to recognize the impact of current price increases in making a comparison of fiscal year 1969-70 program levels. The fiscal year 1970 program is priced in detail in summer 1968 prices. The program will actually be paid for in prices prevailing from July 1969 through calendar 1970 or later, and these payments will incorporate an average of 2 years of inflation from the summer 1968 base. This will offset most or all of the apparent increase.

1969 VERSUS 1970 BUDGET

Mr. SIKES. The budget for fiscal 1970 now before us is how much?

Mr. MOOT. In outlay terms, which is a part of the \$192.9, \$77.9 billion.

Mr. SIKES. Would you attempt to estimate for the committee—and this can be refined later for exactness—but, eliminating the cost of the Vietnamese war, which we did not have 10 years ago, eliminating increases in cost due to wage and salary increases, eliminating increases due to inflation, what would be a comparable budget figure for 1960? Would you hazard an estimate now?

Mr. MOOT. As a matter of fact, I can give you the exact figures, starting in 1964, and the 1960 to 1964 budgets I can supply for the record. But there was a relatively even period there from about 2 years before 1964 through 1965 and I can check the 1960 budget but, actually, the 1964 budget, without retired pay, if I can eliminate this, was \$49.6 billion. If we take the Department of Commerce's established price deflator and look at the 1970 budget without retired pay and in the nonwar area as reported to the Congress and apply the deflator, we have a 1970 budget that you are looking at in the same dollars of \$41.8 billion.

(STAFF NOTE.—The following information was provided for the record:)

The following is a summary of the Defense budget, including actual figures for 1960 and 1964 and the current 1970 request, all stated in fiscal year 1964 prices:

[Outlays in billions of dollars, at 1964 prices]

	1960	1964	1970
Southeast Asia.....			21.1
Retired pay.....	0.7	1.2	2.2
All other.....	45.2	49.6	41.8
Total.....	45.9	50.8	65.1

In constant fiscal year 1964 dollars, defense programs (excluding Southeast Asia and retired pay) have dropped as follows:

From 1960 to 1970, by \$3.4 billion, or 8 percent.

From 1964 (the last prewar year) to 1970, by \$7.8 billion, or 16 percent.

Mr. SIKES. That's the point I felt should be brought out. I think it is a very significant point. In terms of comparability, we are spending less money now than we were 10 years ago or even 6 years ago.

Mr. MOOT. Yes. That figure that I gave you is just over 5 percent of the gross national product for fiscal year 1970, while we were spending 8.3 percent of the gross national product back in 1964. Also, our fiscal year 1970 budget excluding Southeast Asia is a much smaller share of the total Federal budget than it was back in 1964.

Mr. SIKES. So, with no fewer commitments now than we had at that period, we are attempting to meet our commitment with actually less money?

Mr. MOOT. That is right, sir, and with aging equipment.

SOVIET VERSUS UNITED STATES DEFENSE EFFORT

Mr. SIKES. Now, one further question. Have the Russians felt cost increases which are comparable to the cost increases we have experienced? Other, of course, than the Vietnamese war?

Mr. MOOT. I don't know about it with any exactitude, Mr. Chairman, but it is my understanding that they have had some cost increases.

I believe that two points are especially important in comparing the Soviet and United States defense efforts. First, the Soviets are applying a higher portion of GNP to defense than we are, when the special costs of the conflict in Southeast Asia are set aside. That is, if we deduct the resources being consumed in a shooting war, the Soviets are devoting a higher portion of their GNP to building long-term military readiness than we are. The spread here is at least one-fourth. Second, it appears that the Soviets have been devoting a constant portion of their GNP to military programs since about 1964, so their military spending grows as their economy grows. In contrast, we devoted 8.3 percent of our GNP to defense in 1964, but our nonwar budget for 1970 will amount to 5.5 percent of our GNP. If we were to maintain the 1964 relationship with the Soviets in this regard, our fiscal year 1970 budget would have to be \$25 billion greater.

All of this means that the Soviets have accorded military programs a higher place in their scheme of national priorities than we have.

SOVIET EMPHASIS ON WEAPONS MODERNIZATION

Mr. SIKES. Could you tell the committee about the comparability of modernization of weapons on the part of the Russians at this time? Are they placing greater emphasis on modernization than we are? That is what I am trying to get at.

Mr. MOOT. Again, if I could expand this for the record, it is my understanding, after sitting in on meetings in the Pentagon examining this subject, that they are, in almost every area of their defense program, applying more of their GNP than we are.

Mr. SIKES. You will expand on that for the record?

Mr. MOOT. I will. It is a very difficult area because the data are not very definitive.

U.S. DEFENSE COMMITMENTS

Mr. SIKES. What are our current commitments and how are they translated into military manpower, military weapons systems, and dollars?

Now, Mr. Secretary, I am going to ask you to put a reply in the record. I don't want a reply at this time. I would like to have a response for the committee from the service secretaries, and the chairmen of the Joint Chiefs.

Mr. MOOT. I think that is a very pertinent question.

(The information follows:)

U.S. COMMITMENTS AND DEFENSE BUDGETS

The Secretaries of the Army, Navy, and Air Force and the Chairman, Joint Chiefs of Staff, concur in this statement.

Our current major commitments are best illustrated by the attached map of formal U.S. collective defense arrangements. These are all longstanding arrangements—the treaties were signed 15 to 20 years ago. In addition, there are a series of bilateral agreements that impact on U.S. force requirements. The level of U.S. commitments has been relatively stable over the past 5 years. No significant new ones have been made or older ones revised.

These commitments, together with policy guidance from the President and the National Security Council and recommendations from the Joint Chiefs of Staff and the military departments are translated into military manpower, weapon systems, and dollars through our planning, programing, and budgeting system. This system requires each year, a thorough review of the defense program based

on a careful assessment of the threat, our commitments, our policy guidance and military strategy. The resource implications of alternative strategies and programs are introduced very early in the cycle and are thoroughly studied and discussed for almost a year before a budget is transmitted to Congress. In addition to the reviews conducted by the OSD, reviews are made by the Bureau of the Budget, the President and the House and Senate Armed Services and Appropriations Committees.

NON-MILITARY ITEMS IN DEFENSE BUDGET

Mr. LIPSCOMB. Aside from maintaining adequate weapons systems for the security of our country and the welfare of its people, the Defense Department also has within its budget over \$6 billion worth of expenditures that are really non-military in nature, isn't that correct?

Mr. MOOT. I am not sure what you include in your non-military—

Mr. LIPSCOMB. Retirement pay, dependent schooling, all kinds of things that are good for our country but non-military in nature.

Mr. MOOT. We have attempted to determine what we would come up with on that figure but you are right in that basic sense. For example, there is \$2.7 billion of retired pay.

Mr. LIPSCOMB. Dependent schooling?

Mr. MOOT. Dependent schooling—I don't have an exact total, but you are absolutely right. The only reason I hesitated, I wasn't sure whether it was 6 billion, but it is in that neighborhood.

Mr. LIPSCOMB. Anyone who sits on this committee year in and year out and participates in these hearings should know that the reduction, or even the suggested reduction of over \$10 billion in the Defense budget, with the demands that are upon us, is completely out of reason. Certainly we are all interested in cutting out waste and inefficiency. But to put a demand upon the Department to look for a \$10 billion cut over and above what they have already been saddled with is absolutely ridiculous as far as I am concerned.

Mr. MOOT. We certainly believe we couldn't meet our commitments with any reduction like that.

Mr. LIPSCOMB. I hope you are not required to spend too much time trying to look for \$10 billion in a budget that is already so tight that we can't maintain the adequacy of our defense program at the present time. It is from a lack of understanding and adequate knowledge that there is such a demand, or that such statements are made.

PROJECT AGILE

Mr. DAVIS. Mr. Secretary, you mentioned in your statement Project Agile. What is that?

Mr. MOOT. It is a program for limited war insurgency techniques, obviously in overseas areas, or research for that primarily.

PERSONNEL CONTROLS

Mr. DAVIS. I would like to discuss with you two phases of personnel, Mr. Secretary.

First of all, what review, what action does your office take with respect to personnel levels?

Mr. MOOT. Of course, personnel control—that is, the number of personnel, controlled in the Department of Defense, is not a part of my responsibility. I handle the funds that relate from that, but the mili-

tary manpower people handle the so-called collings and allocations of military personnel within the departments. So that actually we react to their determinations and then, of course, challenge and question their allocations just as we do with anything that costs money in the Department of Defense, but we do not set the levels.

Mr. DAVIS. Does your office in its review of funding place any limitations on the numbers or the dollars that are submitted to you in the way of personnel requirements?

Mr. Moor. Yes, sir. We generally have a budget approach which says: What is the job to be performed? Why does the job need to be performed? How do you quantify the workload and what is the productivity involved in getting this workload done, and therefore how many people are required, what kind of people, what do the people cost, and that is the requirement that we are looking for, and we are constantly, as I think our budgets to this committee over the years would show, we are constantly seeking improved productivity—more work with less people—as we improve techniques and as we get better means of doing the job.

Now, I am, of course, talking about the support functions and the backup functions rather than our combat functions.

EFFECT OF TROOP WITHDRAWALS FROM VIETNAM

Mr. DAVIS. The figures you presented with respect to personnel today, which I believe showed a reduction in the Air Force, but an increase in the other branches of the services, did those figures reflect the recent announcement of the withdrawal of the 25,000 troops?

Mr. Moor. They did not.

Mr. DAVIS. Since combat troops usually require more by the numbers to sustain them in the field than are actually there, may we anticipate a revision of the personnel figures to which you referred by the time we get to marking up this bill?

Mr. Moor. There are one or two aspects that you need to keep in mind, Congressman. What you say about the multiplier effect of the support personnel is absolutely true, but before we can price—and we have not yet been able to determine the pricing impact of the withdrawal—we need to know how many of the personnel are going to leave the baseline forces, actually be demobilized, versus being withdrawn.

As you know, the plan involves a redeployment, some to Hawaii, some to Japan, some to Okinawa, some to the continental United States, and we are awaiting the details of that plan to determine how many total personnel will be reduced in the force level and it is on that basis that we will be able to calculate a reduction and this we will give you as quickly as we can get it. I feel sure that this will probably be available and priced well before a bill is reported out.

PERSONNEL COSTS

Mr. DAVIS. I was referring to, I believe it was Mr. Lipscomb's statement, that we haven't finished with the personnel costs when we simply talk about the figure for paying them while they are in the service.

When we look at the various benefits to which they are entitled through the Veterans' Administration, the education and training, the pensions and all the things that go with it, it gets us back to the policy of the Marine Corps in particular, this planned early release with a fixed input which is possible for them because of the existence of Selective Service.

Has your office had an opportunity to review this matter of fixed input and comparable early release program and to decide whether there aren't economic factors mitigating against a fixed policy of this kind?

Mr. Moor. We have worked, Congressman Davis, with the manpower secretariat in their efforts of studying the entire compensation incentive field in terms of retirement, active duty pay and, as you know, the variable bonuses of one type or another, and there is a considerable amount of work going on along this line, particularly with the study of the volunteer-army proposal that is being conducted, and I feel sure that all of these considerations will be given due weight as the study progresses.

I think that probably we are several months, at least, away from a final answer in this area, but I think a lot of good work is going on at the present time.

POLICY OF TEMPORARY PROMOTIONS

Mr. DAVIS. One of the things that your statement made very clear to us is the accelerating cost of personnel compensation for people in the armed services.

One of the things that our hearings have developed is that not only have we had these substantial increases in pay per rank, but also the practice of widespread temporary promotions among the commissioned officers. As a result, in one branch in particular, many of the officers are now serving and being paid in two ranks above what they would be under the personnel level that has been set by permanent legislation. When this was presented to your office, was a review of this situation made as to whether this could be justified? In one way it permits them to come to us with requests for additional compensation in the various ranks, but then for them to give themselves their own pay raises, in effect by such widespread practice, has this been looked into as a part of the review?

Mr. Moor. We looked into this in this past budget review in the enlisted side of it, in the top six enlisted grades, where there was a formal request to increase the numbers in that area and the justification was that it helps retention and therefore decreases turnover and therefore decreases training costs and as near as we could tell, while these things are judgmental, looking into the future, there did appear to be ample justification for providing some increase in each of the three services in the six top enlisted grades.

We presented this to the Secretary with an idea that this would reduce the training base cost and that we could recover the cost. He approved the recommendation and charged us to make sure that we did recover from the training base the estimated savings as they

would materialize and we do have it in mind to make sure that we do collect the dividend from this increase in the top six enlisted grades.

We have not, or we did not in my time frame, during this past budget review, review the commissioned side versus the enlisted side and I don't know that we have done so in recent years. Have we, Mr. Brazier?

Mr. BRAZIER. I don't know what the basis for the temporary promotion is, but it is something that has been in effect at least since World War II and has not to my knowledge been challenged as being an unreasonable procedure.

Mr. DAVIS. It was challenged back in 1952. There was such a thing known as the Davis rider, which you may recall, which became necessary because of a flagrant situation which had developed where there was no legislation to cover it at all at that time.

Then in 1953 or 1954 came the Personnel Act, that the Armed Services Committee finally got around to doing after we did it first, and they decided they would rather do it by permanent legislation than to have us attach riders to appropriations bills.

In the hearings this year—and I wish you would take a look at it—we have had submitted for the record what appears to be a situation where not just a few, but a majority of the officers are serving in temporary ranks, one and two above what the normal table of commissioned officer personnel requires. I wish you would take a look at that and see if it isn't something that perhaps ought to be handled at your level rather than for us having to make an issue of it here in this committee or on the floor of the House.

Mr. MOOR. I assure you we will check the record and we will look into it.

Mr. DAVIS. I think the information at our request has been put in for all three branches of the service. If you will take a look at that, I think it would be very helpful.

Mr. MOOR. We will.

TEMPORARY PROMOTION OF OFFICERS

(Staff note: The following additional information was provided for the record by the Secretary:)

Program and budget reviews are concerned with the total numbers of military personnel required (officer and enlisted) and the grade distribution. For officers, this process is closely related to the Officer Grade Limitation Act of 1954, which controls the number of officers in the grade of major/lieutenant commander or above, within the total.

There are thus adequate reviews and controls on the total number of officers and their distribution by rank. There has been no significant upgrading in recent years. This is evident in the following table:

ACTIVE DUTY OFFICERS AS OF JUNE 30

	Number of officers				As percentage of total			
	1964	1965	1968	1970	1964	1965	1968	1970
General/admiral.....	1,294	1,287	1,352	1,320	0.383	0.380	0.325	0.315
Colonel/captain.....	15,323	15,288	17,969	18,007	4.540	4.512	4.321	4.303
Lieutenant colonel/commander.....	36,347	36,073	43,822	44,766	10.769	10.647	10.538	10.697
Major/lieutenant commander.....	55,081	56,003	72,130	73,518	16.320	16.529	17.345	17.567
Captain/lieutenant.....	105,884	104,486	112,850	117,738	31.373	30.838	27.137	28.134
First lieutenant/lieutenant (junior grade).....	59,337	62,010	66,233	73,887	17.581	18.302	15.927	17.656
Second lieutenant/ensign.....	47,864	47,671	73,701	58,731	14.182	14.070	17.723	14.034
Warrant officer.....	16,372	16,004	27,787	30,524	4.851	4.723	6.682	7.294
Total.....	337,502	338,822	415,844	418,491	100.000	100.000	100.000	100.000
Summary:								
Lieutenant colonel/commander and above.....	52,964	52,648	63,143	64,093	15.692	15.539	15.184	15.315
Major and captain/Lieutenant Commander and Lieutenant.....	160,965	160,489	184,980	191,256	47.693	47.367	44.482	45.701
First lieutenant/lieutenant (junior grade) and below.....	123,573	125,685	167,721	163,142	36.614	37.095	40.332	38.984
	337,502	338,822	415,844	418,491	100.000	100.000	100.000	100.000
Officers as percent of total personnel.....					12.558	12.759	11.721	12.132

Officers as percent of total personnel, June 30:

	Percent
1945.....	10.4
1950.....	12.4
1955.....	12.0
1960.....	12.8
1965.....	12.8
1970.....	12.1

As the table shows, the percentage of flag-rank officers and colonels/Navy captains has declined steadily since 1964. In the summary at the bottom of the table, note that the lowest ranks have increased proportionately from 1964 to 1970, while the top and middle ranks decline.

Officers are forecast at 12.1 percent of the active force in 1970, considerably below the 1960 and 1965 levels and about the same as the 1955 level.

As indicated above, the program and budget reviews focus upon total officer requirements, with no special emphasis upon the distinction between permanent and temporary rank within that total. There are no indications that temporary grade authorizations pose a budgetary problem, nor do there appear to be any legal questions or management problems. In fact, the use of temporary grade authorizations at the present time is a distinct advantage, because of the large numbers of personnel added temporarily for the duration of operations in Southeast Asia.

The Officer Personnel Act of 1947, as subsequently amended by the Regular Officer Augmentation Act of 1956, established authorizations for permanent Regular officer grades. The Reserve Officer Personnel Act of 1954 established similar authorizations for permanent Reserve officer grades but these authorizations apply to both active duty and nonactive duty Reserve officers. These acts have since been codified into the following sections of title 10, United States Code:

Service	Permanent regular grade authorizations	Permanent Reserve grade authorizations
U.S. Army	Secs. 3210 and 3211.....	Secs. 3218 and 3219.
U.S. Navy.....	Secs. 5447 and 5449.....	Secs. 5456 and 5457.
U.S. Air Force.....	Secs. 8210 and 8211.....	Secs. 8218 and 8219.
U.S. Marine Corps.....	Sec. 5448.....	Secs. 5456 and 5458.

The Officer Personnel Act also provided that, when there is a requirement for more officers on active duty than the number of Regular officers authorized by the sections above, Regular and Reserve officers may be appointed in temporary grades equal to or higher than their permanent grades to meet increased grade requirements. During the years between the end of the Korean war and the beginning of the Vietnam buildup, DOD-wide active duty commissioned officer strengths averaged 319,000 while Regular officer authorizations are only 171,000. During these years, and during the Vietnam buildup as well, the difference between active duty grade requirements and permanent officer grade authorizations had been filled principally through temporary promotions. The authority for such promotions has been codified in the following sections of title 10:

Service	Section authorizing higher temporary grades
U.S. Army.....	3442
U.S. Navy.....	5446
U.S. Air Force.....	8442
U.S. Marine Corps.....	5446

The Officer Grade Limitation Act of 1954 imposed grade limitations on the number of officers who may serve on active duty in the grades of major/lieutenant commander and above. Although there are certain exceptions to these limitations, they serve to limit the overall number of officers, Regular and Reserve, who may serve in each of the officer grades at or above grade O-4, whether they hold these grades as permanent or as temporary grades. These limitations have been codified in the following sections of title 10, United States Code:

Service	Sections limiting the number of officers serving in grades O-4 and above
U.S. Army.....	3202
U.S. Navy.....	5442 and 5444
U.S. Air Force.....	8202
U.S. Marine Corps.....	5443

ACCRUED EXPENDITURE REPORTING

Mr. SIKES. Mr. Secretary, on February 22, 1969, the President, by memorandum, reaffirmed "The objective of placing our budgets and financial reports on an accrual basis."

Where does the Defense Department stand with respect to the conversion?

Mr. MOOT. We are in the following status: We have issued instructions and we are working with the military departments to the end that on July 1, all appropriations will be on an accrued expenditure basis for reporting purposes. This is true whether we are talking about military personnel or operation and maintenance. In the procurement accounts we have instructed the departments to accrue on the basis of documents-received basis. This means that all documents received affecting deliveries during a given month preceding will be recorded as accrued expenditures for that particular month.

We have had one basic difference of opinion with the Bureau of the Budget, the General Accounting Office and the Treasury Department, the central fiscal agencies, concerning how far we can go in converting to the accrual basis. I think we have resolved that problem.

The problem was simply this, that the instruction would have required us to get, for hundreds of thousands of contracts, reports as to the amount of work in process at the end of each month that was chargeable to our appropriation accounts (by appropriation account) and to have us integrate that information in our accounting records for reporting to the Treasury on an accrued-expenditure basis.

We did not see how we could get such data in any timely fashion, without inordinate expense and without a terrific load on industry.

We asked industry for their comments and they were quite vocal. We sat down with the Bureau of the Budget personnel who approve any new reporting system imposed on industry, and listened to industry representatives express their opinion. We then reconsidered the reporting proposal mentioned above, and I sat down with Mr. Staats, Mr. Mayo, and Mr. Kennedy, and explained the situation. We are now in agreement that we will attempt to develop a statistical means whereby we can estimate, from the unobligated balances and the normal processing of our expenditures, the amount of backlog of accrued liability each month. We are working to that end.

I think we can meet the basic requirements as adjusted of the accrued expenditure directive as of July 1 with this basic modification.

PROBLEMS WITH ACCRUED ACCOUNTING

Mr. SIKES. Are there other practical day-to-day problems in this operation?

Mr. MOOT. Yes, there are other practical day-to-day problems. First, our accounting systems are not the most modern in certain respects. Secondly, the organization of the military departments does not fully integrate on a documents basis the records used for appropriation accounting, disbursing, and contract administration. To be very timely and accurate on reports on the documented accrued expenditure basis versus a checks-issued basis, we have to figure out how to get the records of the three offices together so the receipt of the document enters immediately into all applicable records as part of an integrated accounting system. This is what we are attempting to do.

There are problems, but I believe there is no question we can meet, as well as any department in the executive branch, the requirements of the instructions on accrued expenditures.

BENEFITS OF ACCRUED ACCOUNTING

Mr. SIKES. Philosophically, will the taxpayer be better informed?

Mr. MOOT. Insofar as our final agreement with the three central fiscal agencies is concerned, the taxpayer, once we get on this basis, will be more timely informed of the expenses being incurred and I think this committee, for example, will be able to see the actual costs being incurred within the Department at the time they are being incurred, measured against whatever we are producing at the time. I also think there will be management benefits.

We were very reluctant to back up into the industry because we felt there was no advantage to us or to you. There is an advantage to the economists in being able to forecast what might happen next year based on the backlog of defense work in industry. But to us, from a management viewpoint, there was little value.

Mr. SIKES. Will the Defense Department be better able to manage its affairs?

Mr. MOOT. Yes, sir. I think from the way we are approaching this on the basis of expense inputs and production outputs, we will be in a little better position to manage on a month-by-month basis, and I don't think it will be too costly for us in terms of the results we will get as long as we don't have this industry side to worry about.

BASIS FOR CONVERTING TO ACCRUED ACCOUNTING

Mr. SIKES. Does the changeover accomplish any real purpose other than to convert governmental accounting to terms understood by commercial accountants and economists?

Mr. MOOT. I would say that the changeover does, as modified, change Government accounting so it conforms more closely with normal commercial accounting principles. We stop short of meeting the economist's viewpoint in our accounting system—this will be covered statistically. I think this approach does give us a little better management tool in the sense of comparing accounting costs to production output. Stated another way, it does little good to know that you have ordered something if you have already received it and put it into use. Present accounting records do not always show goods and services used related to production or output. We like to relate costs to what we are producing. To this extent, accrual accounting will help us, sir.

ACCRUAL ACCOUNTING FOR ECONOMISTS

Mr. SIKES. The ordinary taxpayer understands generally how a checking account operates and how to balance it. He does not understand the accrued expenditures and other technically esoteric terminology. Would it not be better for the Nation as a whole to keep its Government accounting on a simple entry "turkey-shoot" basis and require the accountants and the economists to learn that system than to convert Government accounting to a basis not known and understood by the vast majority of the citizens, who pay the taxes, as well as some Congressmen?

Mr. MOOT. I think to that question I can answer yes, because I think the question implies we would be talking about the economist's requirements and not normal accrual accounting. Generally speaking, what we are now talking about is our pay and the services rendered and we are currently on the accrual basis in that area. This, I think, is perfectly all right from our viewpoint, and understandable to the taxpayer, since nearly all of private industry and Government agencies are on an accrual basis to this extent.

Mr. SIKES. Will you provide for the record the definition of the accrual basis which is to be used in a comparison with the basis heretofore followed?

Mr. MOOT. We will be happy to, sir.
(The information follows:)

COMPARISON OF THE ACCRUAL VERSUS THE OBLIGATION BASIS OF ACCOUNTING

The Federal expenditure process involves nine basic types of transactions which can—and in many cases should—be reflected in the accounting system of an agency. These transactions are as follows:

1. Appropriation warrants.

2. Apportionments approved by the Bureau of the Budget.
3. Allotments issued by responsible officials within the agency.
4. Authorizations (commitments) to incur obligations issued by the allotment holder. (The recording of commitments is optional in certain cases.)
5. Obligating funds by placing orders and contracts.
6. Receipt of goods and services (i.e., incurring a liability).
7. Application or consumption of the goods and services received. (Cost or expense.)
8. Payment of liability when due by cash or issuance of a check.
9. Recording a check paid by a depository or other Treasury agent. (Applies only to the Treasury Department.)

An accrual accounting system in a Government agency develops information, as needed by management, on costs of goods and services used, goods and services received, obligations incurred, and disbursements (cash payments or checks issued). It also incorporates financial controls that are consistent with management responsibilities, generally providing for broad fund controls in terms of appropriations, apportionments and allotments. This means that an accrual accounting system will provide for recording and reporting of the first eight transactions listed above.

In contrast with the "accrual basis", the traditional "obligation basis" of accounting does not provide for recording and reporting transactions 6 and 7 above in the official accounts of the agency.

When consumption or application of resources takes place at or soon after the time of delivery, costs are recorded in an amount equivalent to the accrued expenditure. In such cases, transactions 6 and 7 are merged and treated as one transaction. In addition to its present methods of accounting for funds, commitments, obligations, and disbursements, the Department of Defense has prescribed that accounting recognition will be given to accrued expenditures.

The relationship and general sequence of the above transactions is illustrated on the attached chart.

Under a full accrual accounting system, revenues are accrued as well as expenditures. The Department of Defense has recorded revenues on an accrual basis for many years. Revenues generally arise from the sale of goods or services to other appropriations or (where authorized) to private individuals and concerns.

The following is from a recent publication of the General Accounting Office:
 An accounting system in which revenues and expenditures are recognized as they are earned or occur, regardless of when payment of expenses is made or when the income is actually received. An accrual accounting system reflects the resources available to an agency, the receipt of goods and services, the use of resources in relation to work performed and benefits derived during a particular time period, and the liabilities of the agency * * *.

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RECORDING TRANSACTIONS UNDER FEDERAL EXPENDITURE PROCESS

Transaction	RECORDED IN PERIOD IN WHICH						
	Available	Available	Available	Certified	Ordered	Received/Applied	Disbursed or Issued
1. Warrant issued covering appropriation by Congress	As authority to obligate and expend funds					:	
2. Apportionment approved by Bureau of the Budget		As authority to obligate and expend funds				:	
3. Allotment by Agency Head			As authority to obligate and expend funds			:	
4. Authorization to incur obligations issued by allotment holder				As a commitment		:	
5. Placing an order for goods or services (e.g., contract)					As an obligation	:	
6. Receipt of goods or services						As an accrued expenditure	
7. Goods and services consumed or applied, i.e., asset acquired or expense incurred						As an expense or cost of asset acquired	
8. Payment made by cash or check issued by D.O.						:	As a disbursement of cash
9. Check Paid	(This transaction is recorded only in the accounts of the Department of the Treasury.)						

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COMPLIMENTS TO THE SECRETARY

Mr. SIKES. Mr. Secretary, I want the record to show that I am very much impressed with the statement you gave to the committee this morning. It is a comprehensive statement. It gives us a very good summation of this complicated, long, drawn-out budget program of ours and I have a better understanding of it as a result of having perused your statement and I intend to study it more.

Mr. MOOT. Mr. Chairman, my colleagues and I all thank you. We appreciate it very much.

Mr. SIKES. Thank you very much for your appearance.

Mr. LIPSCOMB. This was a very good presentation.

OPERATION AND MAINTENANCE

Mr. SIKES. Indeed it was Mr. Lipscomb, and very well thought out. You know, Mr. Secretary, you usually present an overall statement at the beginning of the operation and maintenance hearings each year. When we began these hearings this year you were busy with the Secretary and we never did get to hear your statement. We would appreciate your inserting it in the record at this point so that we will have the information it contains readily available.

Mr. MOOT. I will be glad to insert that statement, Mr. Chairman. (The statement follows:)

STATEMENT SUBMITTED TO THE SUBCOMMITTEE ON DEPARTMENT OF DEFENSE APPROPRIATIONS TO THE HOUSE COMMITTEE ON APPROPRIATIONS ON THE FISCAL YEAR 1970 OPERATION AND MAINTENANCE APPROPRIATIONS REQUEST

Mr. Chairman and members of the committee, I would like to present to you today data in support of the operation and maintenance appropriation requests for fiscal year 1970. Each of the services and defense agencies has separately provided detailed statements and presentations to you in connection with their testimony on each appropriation request; this statement will highlight major defense-wide areas of interest. The programs and amounts I will discuss are related to the President's budget as revised.

APPROPRIATION COVERAGE

Title II is composed of 10 appropriations which provide for the operating costs of the Department of Defense other than those financed by the military personnel appropriations. Force levels, equipment, activity rates, and required levels of readiness are the primary determinants of the amounts requested here. These funds are necessary for the effective use and efficient maintenance of the force structure which we believe to be necessary for our Nation's security.

The operation and maintenance appropriations coverage ranges beyond the immediate operating costs of force units. Support and training functions require funding appropriate to the needs of the force units. Personnel must receive basic military and advanced technical training. Medical care, troop housing and other personnel support must be provided. The logistic support system must provide supplies, transportation and material maintenance in response to force unit needs. The operation of the base establishment and administration, communications and command control must be provided for.

Table 1 shows the personnel strengths, force levels, facilities, and activity rates which fundamentally determine operation and maintenance requirements. The magnitude of forces and operations to be supported in fiscal years 1969 and 1970 is indicated by the following comparison of these data with the estimates which were presented 1 year ago in connection with the fiscal year 1969 President's budget:

	Fiscal year 1969		Fiscal year 1970		Percent change from fiscal year 1969 current estimate
	President's budget	Current estimate	Percent change President's budget	Estimate	
Active duty military personnel, June 30.....	3,476,694	3,486,575	+0.3	3,451,513	-1.0
Civilian personnel, June 30.....	1,292,660	1,281,872	-.8	1,253,078	-2.2
Service school student loads.....	206,363	229,637	+11.3	230,560	+4.4
Pilo ¹ training student loads.....	13,800	14,130	+2.4	15,086	+6.3
Patient loads in service medical facilities.....	41,137	42,972	+4.5	42,028	-2.2
Flying hours (O. & M. only).....	17,736,365	17,685,724	-.3	18,206,896	+2.9
Steaming hours.....	2,671,000	2,701,000	+1.0	2,396,000	-11.3

¹ Includes 41,530 Guard technicians who were non-Federal employees in fiscal year 1968 and were not shown as Federal employees in the fiscal year 1969 President's budget.

COMPARISON OF FUNDS

The fiscal year 1970 request for new obligational authority under title II totals \$21.8 billion. The financial summaries at the end of my statement:

1. Compare the fiscal year 1970 request with prior years, including the necessary detail of financing adjustments (table 2-A); and

2. Compare the estimates of expenditures on the same basis as the comparison of new obligational authority (table 2-B).

The fiscal year 1970 estimate for title II of \$21.8 billion is a reduction of about \$0.7 billion from the current fiscal year 1969 estimate. The net decrease between the 2 years is primarily due to the reduction of \$1 billion in the estimate of Southeast Asia related costs. This decrease has been partially offset by increases in the non-Southeast Asia cost area. The major increases are: \$67 million in communications and intelligence; \$54 million associated with transfers in appropriation cognizance; and \$150 million for Reserve and Guard requirements.

The estimated decrease of \$1 billion in Southeast Asia related costs assumes no change in the currently approved SEA deployment plan other than minor reductions in naval forces related to gunfire support, Market Time, and the halt in the bombing of North Vietnam; extension of the current bombing policy which precludes attack sorties in North Vietnam; projection of November and December 1968 activity levels through fiscal year 1970 consistent with evidence of reduced activity as reflected by air and ground munitions consumption; and, continued improvement in logistics management, particularly within SEA, leading to greater utilization of long supply material in theater and reductions in shipments from CONUS and reduced in-theater transportation, handling and storage costs.

AREAS OF SPECIAL INTEREST

I would next like to discuss briefly certain major aspects of the operation and maintenance areas in which the committee has expressed particular interest in the past.

Civilian personnel

The civilian personnel estimates contained in the President's budget, as amended, reflect the operation of section 201 of Public Law 90-364 in fiscal year 1969, and further planned reductions in fiscal year 1970. Total employment at the end of fiscal year 1968, exclusive of summer employment of disadvantaged youth, was 1,248,140, compared to 1,281,872 estimated for end fiscal year 1969 and 1,253,078 estimated for end fiscal year 1970.

The apparent increase in fiscal year 1969 over fiscal year 1968 is due to (a) inclusion for the first time of 42,293 National Guard technicians, who became Federal employees vice State employees effective January 1, 1969, (b) an increase of 27,528 in employment in the SEA theater of operations, which has been exempted from the limitations of Public Law 90-364, and (c) an increase of 5,600 in temporary part-time and intermittent employment. Temporary and part-time employment is constrained by Public Law 90-364 to an average employment for the year not to exceed the average employment in calendar year 1967. Fiscal year 1969 average employment in this category through February 1969 was

31,949, compared to 43,651 for calendar year 1967. Such employment is expected to be well below that allowed by the law.

These increases are offset by a decrease of 41,698 in full-time permanent (non-exempt) employment. This is the category which is subject to the three for four rehire provision of Public Law 90-364. June 30, 1968 employment in this category was 1,150,209, compared to an estimated June 30, 1969, end strength of 1,108,511.

With respect to employment in fiscal year 1970, employment estimates are based on the assumption that the hiring restrictions of Public Law 90-364 will no longer be in effect. It is planned, however, to effect further employment reductions through selective decreases rather than by across-the-board attrition. The revised fiscal year 1970 budget provides for a June 30, 1970, total employment level of 1,253,078, compared to June 30, 1969, employment of 1,281,872.

Complete and specific identification of the reductions required to meet the revised June 30, 1970, end strength has not been completed. The Department of Defense is conducting a thorough review of employment requirements and priorities in order to identify those areas which can be reduced or eliminated without reducing overall readiness.

More detailed personnel data are shown in table 3-A, which summarizes the total direct-hire civilian personnel by service, and table 3-B which indicates direct-hire civilian personnel paid from operation and maintenance appropriations.

Travel costs

In view of the committee's interest in travel costs, we have again included a summary in table 4 of the amounts in operation and maintenance appropriations for object class 21, "Travel and Transportation of Persons." The fiscal year 1970 request of \$453 million is \$5 million below the current fiscal year 1969 estimate. This is primarily due to the decrease in military end strength.

Departmental administration

Table 5 is a summary of the military and civilian personnel and operation and maintenance costs which are identified with the centralized direction and administration of servicewide or Defense-wide activities and programs. There is a very slight increase from fiscal year 1969 to fiscal year 1970. The major reason for the increase being Army costs for the Commonwealth, Hoffman, Melpar, and Forrestal buildings.

Aircraft and flying hours

Table 6 (active aircraft inventory) and table 7 (flying hours supported from operation and maintenance funds) show significant data in the area of operation of aircraft. The Army aircraft inventory and flying hour program continues to build. The decrease in Navy is attributable to the decrease in Southeast Asia activity rates. The Air Force program is level.

Aircraft overhaul

Tables 8 and 9 summarize the distribution between Government and contract facilities of depot-level maintenance and modernization performed on aircraft, their engines and accessories.

Table 8 covers only the operation and maintenance appropriations. You will remember that there were significant adjustments in appropriation responsibilities in fiscal year 1969. Therefore, fiscal year 1969 and fiscal year 1970 are not really comparable to fiscal year 1968. You will notice that the contract/in-house split is essentially the same for fiscal year 1969 and fiscal year 1970.

Table 9 includes both the aircraft maintenance accomplished by operation and maintenance funds and aircraft modernization which is funded in the procurement accounts. Most of the modernization effort is being performed at contractor facilities.

Real property maintenance

The fiscal year 1970 operation and maintenance appropriations retain the language included by the Congress in the fiscal year 1969 Appropriation Act, establishing minimum amounts to be available only for the maintenance of real property facilities. The next table shows by appropriation the fiscal year 1968 obligations, the fiscal year 1969 minimums as enacted by the Congress, the proposed fiscal year 1969 minimums, and the minimums requested for fiscal year 1970.

(In millions of dollars)

	Actual, fiscal year 1968	Enacted minimum, fiscal year 1969	Requested minimum	
			Fiscal year 1969	Fiscal year 1970
Operation and maintenance:				
Army.....	389.2	280.0	280.0	225.0
Navy.....	154.7	155.6	138.6	147.5
Marine Corps.....	22.7	22.7	21.2	22.4
Air Force.....	280.4	250.0	250.0	250.0
Defense agencies.....	14.6	13.7	13.7	15.1
Army National Guard.....	2.0	1.9	1.9	1.9
Air National Guard.....	3.1	2.7	2.7	2.8
Total.....	866.7	726.6	708.1	664.7

The proposed decrease in the fiscal year 1969 minimum results from the reductions required to comply with the Revenue and Expenditure Control Act of 1968. Table 10-A through 10-D contain more detailed information on real property maintenance for all accounts as reported by the military departments and defense agencies.

Communications systems costs

Table 11 describes the communications systems costs which are provided from operation and maintenance appropriations. Changes in leased communications relate to extending the AUTOVON network into areas outside the CONUS, additional AUTODIN subscribers resulting from the delivery of government furnished terminal equipment, and the U.S. portion of a joint United States-Canada switched communications network in support of the continental air defense program.

Station operation cost increases relate to spare parts for new equipment entering the inventory, increased costs of purchased utility services, and follow-on maintenance of satellite ground terminals.

Dependent schools

The estimated Department of Defense average daily enrollment for fiscal years 1969 and 1970 compared with the actual enrollment in fiscal year 1968 follows:

	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
Army:			
Service-operated schools, 1 through 12.....	97,040	97,450	102,000
Kindergarten.....		10,300	14,000
Tuition-fee schools.....	3,394	4,050	4,100
Navy:			
Service-operated schools, 1 through 12.....	5,238	5,518	5,634
Kindergarten.....		680	700
Tuition-fee schools.....	1,530	1,698	1,783
Panama Canal Zone schools, kindergarten through junior college.....	7,042	7,131	7,400
Air Force:			
Service-operated schools, 1 through 12.....	43,192	44,983	46,314
Kindergarten.....		4,352	4,352
Tuition-fee schools.....	4,847	5,487	5,300
Defense Intelligence Agency: Tuition-fee schools.....	1,011		
Total Department of Defense:			
Service-operated schools.....	145,470	147,951	153,948
Kindergarten.....		15,332	19,052
Tuition-fee schools.....	10,782	11,235	11,183
Panama Canal Zone schools, kindergarten through junior college.....	7,042	7,131	7,400
Total.....	163,294	181,649	191,583

The estimate of student enrollment in fiscal year 1969 as reflected above is 181,649 which is a net increase of approximately 1,800 students over the estimate provided last year at this time. The major changes from our previous estimate for fiscal year 1969 occurred in the European area where we estimated an enrollment of 91,000 for service operated schools in grades 1 to 12 but experienced an increase of 6,450 over this number. Offsetting this increase was a shortfall of kindergarten

enrollment in Europe of 4,800. Due to the late implementation of our expanded program in fiscal year 1969, including the kindergarten program which was instituted for the first time with appropriated funds, we were unable to fully implement the intended expansion. Assets thus freed up as well as those made available by other program deferrals were applied to satisfy the increased requirements occasioned by the enrollment increase, permitting us to remain within the fiscal year 1969 limitation of \$112.4 million. You will note that line 3 on table 13 provides for restoration of the program which was deferred.

The fiscal year 1970 estimate is 191,583 which is an increase of approximately 9,900 students over the fiscal year 1969 level, of which 8,300 are in Europe, 1,100 are in the Pacific, and the remainder in the Atlantic area. The forecasted increase in Europe is due mainly, to a continuation of the factors which occurred during fiscal year 1968; namely a continuing increase in the ratio of school age dependents of senior enlisted grades to school age dependents of lower enlisted grades. You will recall that many senior enlisted grade personnel were transferred from Europe to Vietnam during the early part of the conflict causing a decrease in the dependent population. This trend was reversed in fiscal year 1968.

Amount requested in the budgets of the respective military services for fiscal year 1970 total \$135.6 million, an increase of \$23.2 million over the current fiscal year estimate. Table 13, as previously mentioned, provides an explanation of the increases between fiscal year 1969 and fiscal year 1970.

We believe that the requested resources will provide a sound educational program for the dependents of our service personnel overseas. The fiscal year 1970 request, which will of course, be presented in more detail at subsequent hearings, reflects an improvement in the classroom pupil-teacher ratio, better teacher staffing of special subject matter areas, remedial reading and guidance counseling, a standardized school nurse program and a new model schools program. While these improvements do cause an increase in our per pupil cost (excluding unique and tuition fee costs) for fiscal year 1970 to \$607.51 over the fiscal year 1969 figure of \$525.83 the Department of Defense schools are still below the national average per pupil costs of \$657.

SUMMARY

The amounts requested for these appropriations represent the basic requirements for supporting the operations and the readiness of the approved forces, based on prices known at the time of their submission. As in the past, no contingency has been included for general increases in the costs of goods or contractual services which occur because of unexpected changes in unit costs or in the quantities required, except that provision has been made for wage board increases expected to be approved through June 30, 1969. Your approval of this request will assure adequate operations and maintenance support of our personnel, their weapons, equipment, and facilities in the coming fiscal year.

This completes my statement and I will be glad to try to answer any questions you may have.

TABLE 1.—SUMMARY OF KEY ACTIVITY INDICATORS

	1968	1969	1970
Active duty military personnel, June 30.....	3,546,957	3,486,575	3,451,153
Army.....	1,569,714	1,533,775	1,508,585
Navy.....	765,232	770,800	766,868
Marine Corps.....	307,252	313,400	314,500
Air Force.....	904,759	868,600	861,200
Direct-hire civilian personnel, June 30.....	1,248,140	1,281,872	1,253,078
Army.....	437,932	468,229	454,020
Navy and Marine Corps.....	419,546	415,249	405,346
Air Force.....	315,956	325,930	322,088
Defense Agencies.....	74,706	72,464	71,624
Active aircraft inventory, June 30.....	33,779	34,541	34,915
Army (Including Reserve and Guard).....	10,653	11,622	12,018
Navy and Marine Corps (Including Reserve).....	8,491	8,619	8,535
Air Force (Including Reserve and Guard).....	14,635	14,300	14,362

TABLE 1.—SUMMARY OF KEY ACTIVITY INDICATORS

	1968	1969	1970
Flying hours (O. & M. only) (thousands).....	15,693	17,686	18,207
Army (Including Reserve and Guard).....	5,547	6,960	7,461
Navy and Marine Corps (Including Reserve).....	3,588	3,654	3,576
Air Force (Including Reserve and Guard).....	6,558	7,072	7,170
Active fleet ships, June 30.....	932	906	877
Steaming hours (thousands).....	2,679	2,701	2,396
Student loans:			
Service schools:			
Army.....	82,496	89,741	87,108
Navy.....	68,949	77,488	83,916
Marine Corps.....	11,631	13,405	14,416
Air Force.....	41,301	49,003	45,120
Recruit training:			
Army.....	180,088	189,100	205,000
Navy.....	25,203	33,478	28,305
Marine Corps.....	18,001	17,990	18,066
Air Force.....	14,817	18,399	17,144
Undergraduate pilot training:			
Army.....	5,979	6,355	6,409
Navy and Marine Corps.....	3,351	3,405	3,840
Air Force.....	3,741	4,370	4,837
Service academies:			
Army.....	3,238	3,488	3,610
Navy.....	4,094	4,138	4,161
Air Force.....	3,192	3,414	3,724
Civilian institutions:			
Army.....	4,129	4,259	2,924
Navy and Marine Corps.....	2,230	2,364	2,498
Air Force.....	3,686	3,762	3,866
Active major installations.....	647	668	659
Army.....	154	155	154
Navy.....	281	304	304
Marine Corps.....	14	14	14
Air Force.....	198	195	187
Major supply depots.....	62	61	61
Army.....	23	23	23
Navy.....	20	20	20
Marine Corps.....	3	3	3
Air Force.....	8	7	7
Defense Supply Agency.....	8	8	8
Hospitals.....	204	214	212
DASA.....	1	1	1
Army.....	72	73	73
Navy.....	27	37	37
Air Force.....	104	103	101
Patient loads in service medical facilities.....	40,721	42,972	42,028
DASA.....	64	64	64
Army.....	19,035	20,256	19,258
Navy.....	13,059	14,007	14,094
Air Force.....	8,563	8,645	8,612
Reserve personnel participating in paid training programs, June 30.....	1,000,941	1,016,771	1,035,774
Army National Guard.....	389,182	387,600	404,032
Army Reserve.....	311,535	303,743	309,220
Naval Reserve.....	131,242	137,942	132,350
Marine Corps Reserve.....	47,983	51,841	49,041
Air National Guard.....	75,261	84,260	88,471
Air Force Reserve.....	45,738	51,385	52,660

TABLE 2-A.—BUDGET PLAN (TOA), NEW OBLIGATIONAL AUTHORITY, AND APPROPRIATIONS—DETAIL OF FINANCING ADJUSTMENTS

[In thousands of dollars]

	TOA (direct bud- get plan)	Reimburs- able budget plan (add)	Total budget plan	Reimburs- able orders (includes intratund orders) (deduct)	Unobli- gated balance trans- ferred to or from (-) the amount (deduct)	Unobli- gated balance lapsing (add)	Other adjust- ments (deduct)	New obli- gational authority	Transfers to or from (-) the amount (deduct)	Appropri- ations enacted	Proposed supplementals			
											Civilian pay	South- east Asia Act	Reservists	
Fiscal year 1968:														
Operation and maintenance, Army	8,129,992	871,965	9,001,957	864,779	1,274	44	7,186	8,130,036	1,134,904	6,995,132				
Operation and maintenance, Navy	4,968,461	623,086	5,591,547	623,086		5,919		4,973,106	281,165	4,691,941				
Operation and maintenance, Marine Corps	433,959	73,163	507,122	73,163				433,959	40,409	393,550				
Operation and maintenance, Air Force	5,903,799	417,772	6,321,571	398,533	9,870		19,239	5,893,929	490,904	5,403,025				
Operation and maintenance, Defense agencies	966,611	46,044	1,012,655	46,044		2,413		969,024	-1,575	970,599				
Operation and maintenance, Army National Guard	241,675	3,034	244,709	3,034		1,153		242,828	1,828	241,000				
Operation and maintenance, Air National Guard	265,502	4,807	270,309	4,807		469		265,970	-6,600	272,570				
National Board for the Promotion of Rifle Practice, Army	368		368			60		428		428				
Claims, Defense	37,966		37,966			34		38,000	8,000	30,000				
Contingencies, Defense	1,459		1,459			541		2,000	-8,000	10,000				
Court of Military Appeals, Defense	594		594			23		617		617				
Total, fiscal year 1968	20,950,386	2,039,871	22,990,257	2,013,446	11,144	10,656	26,425	20,949,897	1,941,035	19,008,862				

TABLE 2-A.—BUDGET PLAN (TOA), NEW OBLIGATIONAL AUTHORITY, AND APPROPRIATIONS—DETAIL OF FINANCING ADJUSTMENTS—Continued

[In thousands of dollars]

	TOA (direct bud- get plan)	Reimburs- able budget plan (add)	Total budget plan	Reimburs- able orders (includes intrafund orders) (deduct)	Unobli- gated balance trans- ferred to or from (—) the account (deduct)	Unobli- gated balance lapsing (add)	Other adjust- ments (deduct)	New obli- gational authority	Transfers to or from (—) the amount (deduct)	Appropri- ations enacted	Proposed supplementals		
											Civilian pay	South- east Asia Act	Reservists
Fiscal year 1969:													
Operation and maintenance, Army	8,056,141	787,968	8,844,109	784,851	-----	3,117	8,056,141	-259	7,805,000	106,800	144,600	-----	
Operation and maintenance, Navy	5,383,037	670,000	6,053,037	670,000	500	-----	5,382,537	237	5,356,200	26,100	-----	-----	
Operation and maintenance, Marine Corps	464,600	28,430	493,030	28,430	-----	-----	464,600	-----	435,700	4,600	24,300	-----	
Operation and maintenance, Air Force	6,949,105	380,000	7,329,105	367,955	-----	12,045	6,949,105	-395	6,551,000	91,200	307,300	-----	
Operation and maintenance, Defense agencies	1,071,439	43,911	1,115,350	43,911	-----	-----	1,071,439	-5,861	1,036,800	40,500	-----	-----	
Operation and maintenance, Army National Guard	277,664	3,200	280,864	3,200	-----	-----	277,664	-----	264,664	7,600	-----	5,400	
Operation and maintenance, Air National Guard	282,682	7,000	289,682	7,000	-----	-----	282,682	-----	267,000	6,682	-----	9,000	
National Board for the Promotion of Rifle Practice, Army	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Claims, Defense	38,000	-----	38,000	-----	-----	-----	38,000	-----	38,000	-----	-----	-----	
Contingencies, Defense	10,000	-----	10,000	-----	-----	-----	10,000	-----	10,000	-----	-----	-----	
Court of Military Appeals, Defense	654	-----	654	-----	-----	-----	654	-----	686	18	-----	-----	
Total, fiscal year 1969	22,533,322	1,920,509	24,453,831	1,905,347	500	15,162	22,532,822	-6,278	21,765,000	283,500	476,200	14,400	

Fiscal year 1970:						
Operation and maintenance, Army	7,504,500	790,400	8,294,900	791,150	-750	7,504,500
Operation and maintenance, Navy	5,323,700	670,000	5,993,700	670,000		5,323,700
Operation and maintenance, Marine Corps	457,000	28,211	485,211	28,211		457,000
Operation and maintenance, Air Force	6,711,700	380,000	7,091,700	380,000		6,711,700
Operation and maintenance, Defense agencies	1,095,000	43,650	1,138,650	43,650		1,095,000
Operation and maintenance, Army National Guard	306,000	3,200	309,200	3,200		306,000
Operation and maintenance, Air National Guard	342,534	6,000	348,534	6,000		342,534
National Board for the Promotion of Rifle Practice, Army						
Claims, Defense	41,000		41,000			41,000
Contingencies, Defense	10,000		10,000			10,000
Court of Military Appeals, Defense	666		666			666
Total, fiscal year 1970	21,792,100	1,921,461	23,713,561	1,922,211	-750	21,792,100

TABLE 2-B.—OUTLAYS UNDER OPERATION AND MAINTENANCE APPROPRIATIONS, FISCAL YEARS 1968-70

(In thousands of dollars)

	Fiscal year 1968 actual	Fiscal year 1969 estimate	Fiscal year 1970 estimate
Operation and maintenance Army.....	7,929,545	7,925,000	7,525,000
Operation and maintenance, Navy.....	4,730,302	5,300,000	5,279,000
Operation and maintenance, Marine Corps.....	429,348	434,000	455,000
Operation and maintenance, Air Force.....	5,943,817	6,790,000	6,710,500
Operation and maintenance, Defense Agencies.....	963,599	1,061,000	1,077,000
Operation and maintenance, Army National Guard.....	243,731	274,000	300,000
Operation and maintenance, Air National Guard.....	266,798	272,000	311,300
National Board for the Promotion of Rifle Practice, Army.....	350	37	
Claims, Defense.....	32,169	43,500	41,000
Contingencies, Defense.....	1,433	3,000	5,000
Court of Military Appeals, Defense.....	595	613	650
Miscellaneous expired accounts.....	36,141	2,850	1,350
Total.....	20,577,826	22,106,000	21,705,800

TABLE 3-A.—DIRECT-HIRE CIVILIAN STRENGTH

	Fiscal year 1968		Fiscal year 1969 planned		Fiscal year 1970 planned	
	Average strength	End strength June 30, 1968	Average strength	End strength June 30, 1969	Average strength	End strength June 30, 1970
BY SERVICE						
Total, Department of Defense ¹	1,233,895	1,248,140	1,283,092	1,281,872	1,259,646	1,253,078
Department of the Army.....	431,004	437,932	462,367	468,229	455,124	454,020
Department of the Navy.....	409,657	419,546	416,669	415,249	407,695	405,346
Department of the Air Force.....	321,067	315,956	332,397	325,930	326,613	322,088
Defense agencies.....	72,167	74,706	71,659	72,464	70,214	71,624
BY FUNCTION						
Total, Department of Defense: ¹						
Military functions.....	1,231,777	1,245,985	1,281,176	1,279,951	1,258,000	1,251,413
Military assistance.....	2,118	2,155	1,916	1,921	1,646	1,665

¹ Excludes following civil functions: Corps of Engineers; cemeterial expenses; administration, Ryukyu Islands; and wildlife conservation, etc., military reservations.

TABLE 3B.—NUMBER OF DIRECT HIRE CIVILIAN PERSONNEL PAID FROM OPERATION AND MAINTENANCE APPROPRIATIONS (FISCAL YEARS 1967-70)

	Fiscal year 1967 end strength	Fiscal year 1968		Fiscal year 1969		Fiscal year 1970	
		Average	End strength	Average	End strength	Average	End strength
Operation and maintenance:							
Army.....	343,105	345,672	346,213	332,318	335,545	326,380	324,480
Navy.....	169,268	154,422	163,185	159,521	162,732	159,290	156,326
Marine Corps.....	20,577	20,980	20,636	20,642	20,718	21,003	20,338
Air Force.....	287,915	284,657	279,226	230,904	223,228	224,240	219,834
Defense agencies.....	71,497	68,813	71,379	68,559	69,295	67,165	68,433
Army National Guard:							
Direct hire.....	172	160	155	12,263	24,571	24,731	24,795
Non-Federal employees.....	(24,720)	(23,451)	(23,740)	(12,109)			
Air National Guard:							
Direct hire.....				8,232	17,576	18,242	18,009
Non-Federal employees.....	(16,810)	(16,463)	(14,887)	(7,605)			
National Board for the Promotion of Rifle Practice, Army.....	21	18	7				
Court of Military Appeals, Defense.....	43	39	43	40	39	40	40
Total, operation and maintenance appropriation:							
Direct hire.....	892,598	874,761	880,844	832,479	853,704	837,091	832,255
Non-Federal employees.....	(41,530)	(39,914)	(38,627)	(19,714)			

TABLE 4—TRAVEL COSTS

(ANALYSIS OF "TRAVEL AND TRANSPORTATION OF PERSONS," OBJECT CLASS 21, FOR OPERATION AND MAINTENANCE APPROPRIATIONS)

(In thousands of dollars)

	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
Operation and maintenance, Army.....	174,287	167,084	161,176
Operation and maintenance, Navy.....	79,523	80,000	80,000
Operation and maintenance, Marine Corps.....	12,625	12,948	15,228
Operation and maintenance, Air Force.....	184,903	173,200	170,000
Operation and maintenance, Defense agencies.....	17,598	19,396	20,011
Operation and maintenance, Army National Guard.....	2,719	2,966	2,651
Operation and maintenance, Air National Guard.....	2,042	2,943	3,650
National Board for the Promotion of Rifle Practice, Army.....	105		
Court of Military Appeals, Defense.....	2	10	10
Total, direct obligations.....	473,804	458,547	452,726

TABLE 5.—DEPARTMENTAL ADMINISTRATION: CONSOLIDATED REPORT¹

(Dollar amounts in thousands)

Fiscal years	Total	Army	Navy	Marine Corps	Air Force	OSD/ JCS	Defense other agencies
A. Military personnel, end year:							
1968.....	17,268	3,552	3,669	1,642	5,427	2,200	778
1969.....	17,495	3,758	3,687	1,669	5,276	2,307	798
1970.....	17,657	3,805	3,758	1,669	5,276	2,307	842
B. Civilian personnel, end year:							
1968.....	31,174	11,001	6,332	1,178	7,525	2,685	2,453
1969.....	29,752	9,982	6,003	1,217	7,333	2,685	2,532
1970.....	29,693	9,908	6,068	1,217	7,333	2,643	2,524
C. Man-years for civilian employment:							
1968.....	30,423	10,404	6,200	1,318	7,484	2,569	2,448
1969.....	29,337	9,799	5,846	1,182	7,429	2,616	2,465
1970.....	28,878	9,443	5,916	1,179	7,333	2,547	2,460
D. Obligations:							
For military personnel:							
1968.....	185,260	34,838	34,580	16,531	55,142	33,079	11,090
1969.....	205,415	37,623	37,895	17,002	59,662	39,897	13,336
1970.....	205,660	37,446	39,088	17,033	58,523	39,986	13,584
For civilian employment:							
1968.....	339,053	114,139	61,218	10,661	86,597	35,641	30,797
1969.....	345,803	109,016	60,587	10,663	91,800	40,208	33,529
1970.....	345,975	108,863	61,357	10,622	90,890	40,254	33,989
For other departmental expenses:							
1968.....	72,764	20,361	14,406	2,557	17,185	12,910	5,345
1969.....	78,357	18,570	16,074	2,597	17,462	17,366	6,288
1970.....	82,313	22,709	17,248	3,154	17,148	15,991	6,063
Total obligations:							
1968.....	597,077	169,338	110,204	29,749	158,924	81,630	47,232
1969.....	629,575	165,209	114,556	30,262	168,924	97,471	53,153
1970.....	633,948	169,018	117,693	30,809	166,561	96,231	53,636

¹ Departmental is used here as defined in DOD Instruction 7730.41 of April 11, 1967, subject: "DOD Reports on Personnel Staffing in Departmental Headquarters."

"The term 'Departmental' includes those elements of the Office of the Secretary of Defense, the Organization of the Joint Chiefs of Staff, the Headquarters of other DOD agencies and the Headquarters of the Military Departments (including the Offices of the Secretaries of Military Departments) which have responsibility for policy planning and the general management of Department of Defense functions. Departmental Headquarters is that force which is engaged in the continuous centralized direction and control of the total resources and personnel of a single military department, agency, or of the Department of Defense."

TABLE 6.—ACTIVE AIRCRAFT INVENTORY

	Active June 30, 1968	Planned June 30, 1969	Planned June 30, 1970
Active aircraft inventory: ¹			
Army.....	10,653	11,622	12,018
Navy.....	8,491	8,619	8,535
Air Force.....	14,635	14,300	14,447
Total.....	33,779	34,541	35,000
Army: Active aircraft inventory.....			
Active Army.....	9,748	10,705	11,050
Army National Guard and Reserve.....	905	917	968
Navy and Marine Corps: Active aircraft inventory.....			
Operating.....	6,962	7,357	7,299
Regular.....	(5,026)	(5,053)	(4,994)
Marine Corps.....	(1,252)	(1,468)	(1,469)
Navy and Marine Corps Reserve.....	(684)	(836)	(836)
Logistical support (nonoperating).....	1,529	1,262	1,236
Air Force: Active aircraft inventory.....			
U.S. Air Force.....	12,799	12,147	12,392
(O. & M., P-410).....	(11,483)	(11,257)	(11,561)
(R.D.T. & E.—AFSC).....	(501)	(475)	(438)
(MAC-IF).....	(551)	(415)	(393)
(Earmarked).....	(264)		
Air National Guard.....	1,411	1,765	1,781
Air Force Reserve (O. & M., P-410).....	425	388	274

¹ Excludes free world military assistance forces.

TABLE 7.—FLYING HOURS SUPPORTED FROM O. & M. FUNDS

	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
Army, total.....			
Regular.....	(5,546,800)	(6,960,400)	(7,461,000)
Reserve and Guard.....	5,318,800	6,718,600	7,216,200
	228,000	241,800	244,800
Navy, total.....			
Regular.....	(3,588,341)	(3,654,086)	(3,576,282)
Reserve.....	3,294,072	3,311,065	3,233,934
Guard.....	294,269	343,021	342,348
Air Force, total.....			
Regular.....	(6,558,115)	(7,071,638)	(7,169,676)
Reserve.....	5,931,257	6,497,285	6,487,183
Guard.....	163,750	135,753	144,554
	463,108	438,600	537,939
Total, all services ¹.....	15,693,256	17,686,124	18,206,958

¹ Excludes free world military assistance forces.

TABLE 8.—DEPOT LEVEL MAINTENANCE OF AIRCRAFT, ENGINES, AND ACCESSORIES FUNDED BY THE O. & M. APPROPRIATIONS—CONTRACT VERSUS IN-HOUSE

(In millions of dollars)

	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
Army, total.....	187.3	279.0	295.5
Contract.....	76.3	129.4	144.2
In-house.....	111.0	149.6	151.3
Navy, total.....	400.2	699.5	670.3
Contract.....	62.4	147.5	150.5
In-house.....	337.8	552.0	519.8
Air Force, total.....	699.7	1,279.3	1,188.5
Contract.....	399.6	739.9	669.5
In-house.....	300.1	539.4	519.0
Department of Defense, total.....	1,287.2	2,257.8	2,154.3
Contract.....	538.3	1,016.8	964.2
Percent.....	(42)	(45)	(44)
In-house.....	748.9	1,241.0	1,190.1
Percent.....	(58)	(55)	(56)

TABLE 9.—DEPOT MAINTENANCE AND MODERNIZATION OF AIRCRAFT, ENGINES, AND ACCESSORIES FUNDED BY THE O. & M. AND PROCUREMENT APPROPRIATIONS—CONTRACT VERSUS IN-HOUSE

	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
Army, total.....	187.3	279.0	295.5
Maintenance:			
Contract.....	76.3	129.4	144.2
In-house.....	111.0	149.6	151.3
Navy:			
Maintenance.....	400.2	699.5	670.3
Modernization.....	170.5	128.6	36.4
Total.....	570.7	828.1	706.7
Contract.....	200.0	254.9	176.1
In-house.....	370.7	573.2	530.6
Air Force:			
Maintenance.....	699.7	1,279.3	1,188.5
Modernization.....	1.8		4.0
Total.....	701.5	1,279.3	1,192.5
Contract.....	401.4	739.9	670.5
In-house.....	300.1	539.4	522.0
Department of Defense, total:			
Maintenance.....	1,287.2	2,257.8	2,154.3
Modernization.....	172.3	128.6	40.4
Total.....	1,459.5	2,386.4	2,194.7
Contract.....	677.7	1,124.2	990.8
Percent.....	(46)	(47)	(45)
In-house.....	781.8	1,262.2	1,203.9
Percent.....	(54)	(53)	(55)

TABLE 10-A.—DEPARTMENT OF THE ARMY ACTUAL AND ESTIMATED OBLIGATIONS FOR REAL PROPERTY MAINTENANCE, REPAIR, AND MINOR CONSTRUCTION

[In thousands of dollars]

[Fiscal year]

	Maintenance and repair ¹			Minor new construction ²			Total		
	1968	1969	1970	1968	1969	1970	1968	1969	1970
Operation and maintenance, Army ³	349,239	254,935	212,006	40,003	25,065	13,394	389,242	280,000	225,400
Family housing management account.....	54,993	56,336	59,411	917	836	836	55,910	57,172	60,247
Operation and maintenance, Army National Guard.....	1,553	1,389	1,389	448	511	511	2,001	1,900	1,900
Research, development, test, and evaluation ⁴	11,051	12,200	13,100	920	1,010	1,100	11,971	13,210	14,200
Army industrial fund.....	29,165	33,000	34,000	3,213	3,500	3,800	32,378	36,500	37,800
Total	446,001	357,860	319,906	45,501	30,922	19,641	491,502	388,782	339,547

¹ The Army financial system collects cost of maintenance and repair in a single account with no basis for a breakout of repair.

² Includes alterations.

³ Data includes reserve industrial plants and inactive facilities.

⁴ Excludes construction for specific R.D.T. & E. projects as authorized by title 10, United States Code, sec. 2353.

TABLE 10-B.—DEPARTMENT OF THE NAVY MAINTENANCE OF REAL PROPERTY FACILITIES

[In thousands of dollars]

	Fiscal year 1968				Fiscal year 1969				Fiscal year 1970			
	Minor construction and alterations	Major repair projects	Recurring maintenance and repair	Total	Minor construction and alterations	Major repair projects	Recurring maintenance and repair	Total	Minor construction and alterations	Major repair projects	Recurring maintenance and repair	Total
Operation and maintenance, Navy.....	15,330	13,047	126,323	154,700	11,946	13,245	113,409	¹ 138,600	10,412	15,824	121,264	147,500
Operation and maintenance, Marine Corps.....	1,171	3,154	18,356	22,681	941	2,666	17,554	² 21,161	1,173	3,162	18,091	22,426
Family housing, Defense agencies.....	140	-----	36,058	36,198	358	-----	38,294	38,652	341	-----	44,990	45,331
Research, development, test, and evaluation, Navy.....	3,691	3,346	15,515	22,552	4,127	2,949	15,734	22,810	4,447	2,144	16,407	22,998
Navy industrial fund.....	-----	13,218	40,097	53,315	-----	16,640	45,222	61,862	-----	16,115	45,876	61,991
Total.....	20,332	32,765	236,349	289,446	17,372	35,500	230,213	283,085	16,373	37,245	246,628	300,246

¹ Anticipates request to reduce current congressional limitation of \$155,600,000.

² Anticipates request to reduce current congressional limitation of \$22,661,000.

TABLE 10-C—DEPARTMENT OF THE AIR FORCE ACTUAL AND ESTIMATED OBLIGATIONS FOR REAL PROPERTY MAINTENANCE, REPAIRS, ALTERATIONS, AND MINOR CONSTRUCTIONS

[in millions of dollars]

	Maintenance			Repair			Minor new construction ¹			Total		
	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
A. By Contract:												
Operation and maintenance, Air National Guard.....	1.2	1.1	1.3	1.1	1.0	1.5	0.8	0.7	1.2	3.1	2.8	4.0
Research, development, test and evaluation, Air Force.....	1.2	1.0	1.0	3.9	2.0	2.0	3.4	2.9	2.9	8.5	5.9	5.9
Operation and maintenance, Air Force.....	29.6	30.7	30.1	46.9	50.1	48.6	17.7	16.1	16.5	94.2	96.9	95.2
Family housing, Defense.....	15.5	15.5	21.3	7.0	6.6	9.0	.2	.4	.4	22.7	22.5	30.7
B. Other than Contract:												
Work by Air Force organizations ²										278.0	289.9	299.7
Total.....										406.5	418.0	435.5

¹ Includes alterations.

² The amounts shown include: Civilian personnel paid from "Operation and maintenance" P-400 and "R.D.T. & E." P-600 appropriations as well as civilian personnel which are reimbursable from

the family housing account; Military personnel financed from the "Military personnel" appropriation and engineering materiel procured from "Other procurement" appropriation as well as "R.D.T. & E.", "O. & M.", and "Family housing, Defense" appropriations.

TABLE 10-D.—DEFENSE AGENCIES—MAINTENANCE OF REAL PROPERTY FACILITIES

[In thousands of dollars]

	Fiscal year 1968				Fiscal year 1969				Fiscal year 1970			
	Minor construction and alterations	Major repair projects	Routine maintenance and repair	Total	Minor construction and alterations	Major repair projects	Routine maintenance and repair	Total	Minor construction and alterations	Major repair projects	Routine maintenance and repair	Total
1. O. & M. Defense agencies:												
OSD/JCS.....	491		19	510	285		19	304	285		19	304
DCA.....	126		214	340	30		105	135	30		105	135
DCAA.....			4	4			5	5				
DSA.....	775	1,454	6,656	8,885	250	1,296	6,454	8,000	250	2,496	6,454	9,200
AFI & E.....			35	35			23	23			23	23
Classified activities.....	226	126	4,520	4,872	292	289	4,767	5,348	245	350	4,798	5,393
Subtotal, O. & M.....	1,618	1,580	11,448	14,646	857	1,585	11,373	13,815	810	2,846	11,399	15,055
2. Family housing:												
Classified activities.....	47		1,694	1,741	39		1,729	1,768	39		1,727	1,766
DSA.....	2		72	74	2		73	75	2		96	98
Subtotal, family housing.....	49		1,766	1,815	41		1,802	1,843	41		1,823	1,864
Total, Defense agencies.....	1,667	1,580	13,214	16,461	898	1,585	13,175	15,658	851	2,846	13,222	16,919

TABLE 11.—COMMUNICATIONS SYSTEMS COSTS FOR OPERATION AND MAINTENANCE APPROPRIATIONS

(In thousands of dollars)

	Fiscal years		
	1968	1969	1970
Station operations.....	168,080	155,083	169,925
Leased lines and refils.....	294,670	326,486	344,953
AUTOVON.....	62,218	80,472	92,327
AUTODIN.....	67,556	77,411	81,470
SAGE/BUIC.....	16,419	15,961	14,375
BMEWS.....	8,180	6,348	6,348
CADIN.....	6,365	10,841	14,500
Other air defense.....	14,005	14,081	14,020
Air Force strategic.....	10,184	10,469	9,638
Other.....	109,743	110,903	112,275
Alaska Communication System.....	2,446		
Equipment installation/repair projects.....	11,661	19,115	16,209
Defense Communications Agency.....	31,368	40,848	44,997
Total, Department of Defense.....	508,225	541,532	576,084
Army.....	148,992	137,023	152,174
Navy.....	103,367	121,192	122,914
Air Force.....	207,591	221,219	232,767
DCA.....	31,368	40,848	44,997
Other DOD.....	16,907	21,250	23,232

TABLE 12.—OVERSEAS DEPENDENTS EDUCATION

[Dollar amounts in millions]

	Fiscal year—		
	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
1. Administrative costs.....	\$3.1	\$3.5	\$3.8
(a) Salaries of personnel above school level.....	2.4	2.8	3.0
(b) Personnel benefits.....	.1	.1	.2
(c) Travel.....	.3	.3	.3
(d) Supplies.....	.3	.3	.3
2. Education costs.....	58.8	70.7	87.8
(a) Salaries of teachers.....	39.6	50.1	60.0
(b) Salaries of principals.....	3.4	3.7	3.9
(c) Salaries of clerical personnel.....	2.3	2.9	3.1
(d) Salaries of other employees.....	2.4	2.9	5.2
(e) Personnel benefits.....	3.4	4.3	5.3
(f) Instructional supplies, textbooks and library books, equipment.....	7.0	5.8	8.4
(g) Innovations and research.....	.2	.2	1.0
(h) Summer school teachers salaries.....	.4	.4	.4
(i) Other costs.....	.3	.4	.5
3. Support costs.....	15.0	16.6	19.0
(a) Salaries of support personnel.....	4.5	5.4	5.6
(b) Personnel benefits.....	.1	.1	.1
(c) Custodial services at school facilities.....	1.6	1.9	2.1
(d) Contractual services—Other.....	1.0	.5	1.5
(e) Transportation.....	4.5	5.2	5.9
(f) Utilities.....	2.8	3.0	3.3
(g) Other costs (rents and supplies).....	.5	.5	.5
Subtotal costs of DOD schools.....	76.9	90.8	110.6
Less reimbursement for non-DOD student.....	3.8	4.9	5.5
Total DOD costs.....	73.1	85.9	105.1
Estimated number of pupils in DOD schools.....	145,470	163,283	173,000
Cost per pupil.....	\$502.35	\$525.83	\$607.51
4. Costs unique to DOD schools.....	10.3	12.1	14.4
(a) Host nation teachers.....	1.2	1.5	2.3
(b) Costs of living and quarters allowance, foreign post differentials.....	3.1	3.9	4.7
(c) PCS travel of civilian personnel.....	5.1	5.6	6.3
(d) Cost of dormitories (room and board, monitors).....	.9	1.1	1.1
5. Panama Canal Zone Company schools tuition fees.....	6.4	7.5	8.5
6. Tuition fees for other tuition-fee schools.....	5.4	6.9	7.6
Total DOD costs.....	¹ 95.2	112.4	135.6
Estimated number of pupils including tuition.....	² 163,294	181,649	² 191,583
Cost per pupil.....	\$582.91	\$618.50	\$707.91

¹ Includes for comparability with fiscal year 1969 and fiscal year 1970, \$6,686,000,000 not in limitation of \$88,500,000 in fiscal year 1968.

² Includes 15,332 kindergarten pupils in fiscal year 1969, 19,052 in fiscal year 1970; fiscal year 1968 include only 702 kindergarten pupils in the Canal Zone.

TABLE 13.—Overseas dependents education reconciliation fiscal year 1969 and 1970 programs

Fiscal year 1969 estimate.....	112.4
Fiscal year 1970 increases:	
1. Pay raise for Public Law 86-91 employees.....	3.7
2. Within grade increases.....	1.8
3. Restoration of program approved in fiscal year 1969 but not accomplished due to increased students and late implementation....	4.3
4. Annual procurement of textbooks and library books (one-time savings in fiscal year 1969 due to accounting procedure change).....	2.5
5. Estimated increase in student enrollment.....	2.9
6. Estimated increase in tuition fees.....	1.7
7. Improvement in teacher staffing ratios.....	3.7
8. DOD model school program.....	.4
9. Standardized school nurse program.....	1.4
10. Other.....	.8
Fiscal year 1970 request.....	135.6

Wednesday, June 18, 1969.

DEFENSE INSTALLATIONS AND LOGISTICS

WITNESSES

HON. BARRY J. SHILLITO, ASSISTANT SECRETARY (INSTALLATIONS AND LOGISTICS)

J. M. MALLOY, DEPUTY ASSISTANT SECRETARY (PROCUREMENT)

P. H. RILEY, DEPUTY ASSISTANT SECRETARY (SUPPLY AND SERVICES)

EDWARD J. SHERIDAN, DEPUTY ASSISTANT SECRETARY (INSTALLATIONS AND HOUSING)

MAJ. GEN. A. T. STANWIX-HAY, DEPUTY ASSISTANT SECRETARY (MATERIEL)

COL. J. W. ELDER, DEPUTY DIRECTOR FOR TECH DATA STANDARDIZATION POLICY AND QUALITY ASSURANCE

Mr. MAHON. The committee will come to order.

We have with us today the Honorable Barry J. Shillito, Assistant Secretary of Defense (Installations and Logistics) who will discuss a number of problems relating to overall defense procurement matters. This is a discussion which we very much need to have.

We have had numerous discussions on this subject in prior years, and we look forward to further explorations in this area.

While we have had the benefit of your counsel in past years during your tenure with the Navy, Mr. Secretary, this is your first appearance in your present capacity.

Mr. SIKES. A distinguished tenure with the Navy, Mr. Chairman.

Mr. MAHON. Yes.

We want to congratulate you on your new assignment and we are pleased to have you before the committee this year. I believe you have a prepared statement, and we will be pleased to hear your statement presently.

DEFENSE SPENDING

Mr. Secretary, have you been reading the papers and listening to reports in regard to spending practices of the Government in recent weeks?

Mr. SHILLITO. Yes, sir.

Mr. MAHON. You have been reading and hearing about them?

Mr. SHILLITO. Yes, sir; I have, Mr. Chairman.

WALL STREET JOURNAL ARTICLES ON DEFENSE SPENDING

Mr. MAHON. I have before me a copy of a very reputable publication known as the Wall Street Journal.

The Wall Street Journal, along with many other publications, has had quite a bit to say about expenditures, taxes, the proposed tax reform, defense and non-defense spending. The Wall Street Journal has recently put together a series of articles in regard to defense spending. Have you had an occasion to study these articles or read them?

Mr. SHILLITO. Mr. Chairman, I have read some of their articles on defense spending. I would venture to say that probably there are not too many things in their articles that I have not been exposed to. Is this today's Wall Street Journal that you are talking about?

Mr. MAHON. No; I am talking about the Wall Street Journal of May 28, June 3, and June 6, along about that period.

Mr. SHILLITO. Yes, sir; I have read a number of these, sir.

Mr. MAHON. Would you provide for the record your analysis of these articles?

Mr. SHILLITO. Yes, sir.

(The information follows:)

ANALYSIS OF WALL STREET JOURNAL ARTICLES

The three articles appearing in the Wall Street Journal on May 28, June 3, and June 6, were, according to that newspaper, a "... series of articles exploring what the military-industrial complex is, how it operates and what impact it has on American life."

Each article was written by a different author. There is no discernible overall logic, structure or theses to the series—despite the announced purposes. Each article appears to be a rhetorical excursion dealing with a separate but currently appealing subject.

The purpose of the third article dated June 6 is not clear. Apparently, it was written to show that millions of jobs are created by the award of major defense contracts. However, most of the article relates to the success of Grumman Aircraft Engineering Corp. in winning the recent contract for the design, development, and production of the Navy F-14 aircraft. Grumman is mentioned 26 times in the article and there are 16 references to F-14. The message which this article has relating to the military-industrial complex is that the millions of Americans who hold defense jobs—similar to the ones resulting from the F-14 contract—are not likely to complain about existing defense spending but would complain about defense cutbacks because there would be a sharp decline in the employment of engineers and technicians.

The second article dated June 3 deals exclusively with some of the facts and circumstances relating to the C-5A controversy—as they were known to the author when he prepared the article some time prior to the publication date. This article contains numerous conclusions, conjectures, and opinions—some of which are supportable, others of which have been bypassed or overtaken and some of which were never accurate to begin with.

There have been two objective analyses of the C-5A procurement, one by the GAO and one by the Air Force. The facts, as reported by those two agencies, are contained in (i) a GAO report dated June 11, 1969 (copy attached), and (ii) testimony of Secretary Robert C. Seamans, Jr., before the Senate Armed Services Committee on June 3, 1969 (copy attached).

The first article of the series published May 28 discusses the pervasive influence of defense spending, the national employment related to defense spending; and the inflationary pressures it causes. This article associates the "military-industrial complex" (which is mentioned 11 times) with the bad "psychological" outlook which many Americans are reported to have today concerning the Military Establishment. The article infers that critics of the Military Establishment contend that the military-industrial complex is responsible for:

An arms race with Russia;
Inflation;
Waste of public funds;
Inefficient management of the Defense Department; and even
American involvement around the world.

The current debate concerning the proper role of the Military Establishment and its relationship to the major problems confronting us has, in our opinion, greater depth and is of more lasting significance than the alleged influence of the military-industrial complex.

A recent TV news program entitled, "The Military Under Challenge" summarized the current debate, in part, in the following way:

"There is an almost cosmic rhythm in the larger affairs of a great nation. For more than a quarter of a century, the United States has moved in the main in a central direction. Now it appears to be at a point where it might alter that direction. For what is in the process of being decided is whether this country will continue undiminished its massive involvement in the affairs of the world, or whether it is shifting its major concern to conditions within its own boundaries. In the years preceding World War II we looked inward and were isolationists. We ignored the developing problems of the world and paid for it dearly. In the years following that war we turned outward and have been internationalists. We ignored the problems developing in our own country and are paying for it daily.

"The very least these two experiences should teach us is that the proper choice is not between one or the other, but, absolutes are not our only alternatives. And those trying to cast the current debate in just such a rigid mold, are not adding to the quality of the debate, or being helpful to the American people, who began grappling with this problem well before it was taken up by Congress.

* * *

"A generation of young Americans * * * will be voting every year and will have a larger voice among all of us who in the slow and tortuous ways of a democracy are in the process of deciding what constitutes the greatest threat to our well being, turmoil in the world, or turbulence at home, and where the greater effort shall be made. Frank McGee, NBC News."

REVIEW OF SELECTED ASPECTS OF THE C-5A PROGRAM

INTRODUCTION

The General Accounting Office has examined into selected aspects of the procurement of the C-5A airplane. The C-5A is a large jet airplane designed to air-lift military supplies and equipment over long distances. The airplane is being manufactured by the Lockheed-Georgia Co., Marietta, Ga., and the engines by the General Electric Co., Evendale, Ohio.

Our review was made pursuant to the Budget and Accounting Act 1921 (31 U.S.C. 53); the Accounting and Auditing Act of 1950 (31 U.S.C. 67); and the authority of the Comptroller General to examine contractors' records, as set forth in contract clauses prescribed by the United States Code (10 U.S.C. 2813(b)).

Our examination was directed primarily to ascertaining the cost elements in which the projected cost increases occurred, inquiring into the reasons for the cost increases, and determining when the increases should have first been recognized. We also examined into procedures used to assure the proper dis-

tribution of cost between design, development, test and evaluation effort and the initial production effort.

Our review work was initiated in February 1969 and field work was completed in May 1969.

BACKGROUND

In October 1964 the Air Force prepared a technical development plan for the heavy logistics system which included an estimate of program cost of \$3.116 billion for 120 airplanes, engines, preparation of technical and cost proposals for the manufacture of the system and some miscellaneous items. This plan was submitted to the Department of Defense and approval was received to proceed with the program.

In December 1964 the Air Force requested that the Boeing Co., Douglas Aircraft Corp., and Lockheed-Georgia Co., prepare detailed technical and cost proposals for the manufacture of the system, by then identified as the C-5A program. Each contract was a fixed-price contract in the amount of \$7.125 million to perform this work. Similar contracts were awarded to General Electric and Pratt & Whitney to prepare proposals for the engines.

Incorporated in these requests for proposals was a requirement that the competitors submit bids under a new concept of contracting called total package procurement. Under this concept the Air Force envisioned that both development and production of the system, together with as much support as feasible, be procured under a single contract containing a ceiling price as well as performance commitments. This would permit the Government to make a choice between competitors for the development and production units. Hopefully, cost savings would be achieved and the Government would benefit by acquiring a reliable product, at the lowest price, through competition for a major portion of its requirements.

This concept, however, requires that much more of the cost and technical aspects of the system be defined early in the program, placing on the competitors a burden of estimating cost of design and production several years in the future.

These technical and cost proposals were submitted to the Air Force in April 1965. They were evaluated by the Air Force and in October 1965 contracts were awarded to Lockheed and General Electric for development and production of the airplane and engines.

The contracts awarded to Lockheed and General Electric were of the incentive type and included some unusual features. Among these were a "correction of deficiencies" clause which required each contractor to meet or exceed performance criteria included in their proposals, the placing of full systems responsibility on Lockheed, and options for future productions which, if exercised, would cover a 10-year period.

Although the Air Force 1964 estimate was based on 120 airplanes, Lockheed's contract covered the design, development, test and evaluation (D.D.T. & E.) of five airplanes, the production of 53 airplanes identified as run A, and certain spare parts and aerospace ground equipment (AGE). The contract also contained options to produce an additional 57 airplanes which were identified as run B and 85 airplanes identified as run C. The estimated, or target price of the Lockheed contract for 115 airplanes in D.D.T. & E., run A and run B was \$1.945 billion.

General Electric had a similar contract for the engines and the target price was \$624 million including \$165 million for the run B option. According to the contract, the prices for run C option would be based on projections of run B costs.

The target prices included a 10-percent profit and the contractors were to share with the Government in any underrun or overrun of the target cost. Each contract included a sharing arrangement whereby if actual cost was less than target cost, the contractor's profit would increase by 15 percent of the amount of this underrun. If actual cost was higher than target cost, the profit of each contractor would be reduced by 15 percent of the amount of this overrun. The contract also provided for a ceiling price of 130 percent of target cost.

The contract with Lockheed included a clause whereby the Government had the right to adjust the sharing ratio to increase Lockheed's participation in any underrun or overrun to 50 percent and 30 percent respectively with the stipulation that target cost, target price and ceiling price would be increased by about 3.2 percent. The sharing arrangement and the targets were changed soon after contract award in accordance with this clause.

Each contract also contains a clause permitting a revision to the target cost and ceiling price each year beginning with calendar year 1968 to recognize abnormal fluctuations in the price of levels of labor, materials, equipment and subcontracts. In the event that abnormal fluctuations in the economy occurred

In calendar year 1968 or in subsequent years, the target cost and ceiling amounts may be adjusted upward upon request of the contractor. To date, the contractor has not made such a request.

Each contract contains a clause which permits the option price of run B to be adjusted upward if actual costs of producing run A exceed the target cost run A by 30 percent. A formula is included in the contract to compute the amount of this adjustment. This also required each contractor to segregate costs as they are incurred between D.D.T. & E. and run A.

The contract with Lockheed required that the option for run B airplanes be exercised 24 months prior to the scheduled delivery of the first run B unit. This required the Air Force to exercise the option prior to February 1969. Actual costs for the selected segments of run A, for use in determining any revision in the target price of run B, will not be known until after delivery of the last run A units scheduled for 1970. However, in October 1968, the Air Force prepared an estimate of D.D.T. & E. and run A costs for both airplanes and engines to estimate what the adjustment to run B target prices would be.

Following is a schedule which compares the estimate of program costs prepared by the Air Force in 1964 with the target prices on contract and the latest available Air Force estimate of total program costs dated October 1968.

COMPARISON OF C-5A PROGRAM COST ESTIMATES WITH CONTRACT TARGET PRICES
(In thousands of dollars)

	Air Force estimate of program costs October 1964	Contract target prices October 1965	Air Force estimate of program costs October 1968
115 airplanes including D.D.T. & E., run A and run B:			
Airplanes.....	\$2, 240, 300	\$1, 945, 384	\$3, 168, 700
Engines.....	577, 500	624, 000	754, 000
Total.....	2, 817, 800	2, 569, 384	3, 922, 700
Additions: 5 airplanes, support engineering change orders, et cetera....	297, 700		425, 000
Subtotal.....	3, 115, 500		4, 347, 700
Spare parts.....	307, 000	(1)	840, 000
Facilities.....			15, 000
Total.....			5, 202, 700

Note: The 1964 estimate prepared by the Air Force contemplated an airplane with a gross takeoff weight of 645,000 pounds. Subsequently, the Air Force requested the contractors to bid on a somewhat larger airplane. Lockheed's proposal which was accepted provided for an airplane weighing 728,000 pounds and this larger airplane is included in the contract prices above and in the current Air Force estimate of cost.

¹ The contract price for spare parts will not be known until the type and quantities of parts are decided and prices for these items are negotiated. However, the prices for airplanes include about \$26,000,000 in spare parts to support the flight test program.

In response to an Air Force request Lockheed prepared an estimate of actual cost for D.D.T. & E. and run A as of September 1968. We examined into Lockheed's costs incurred and its estimate of costs to complete production run A in relation to the estimated costs included in Lockheed's proposal. In a further section of this report we have outlined the effect the costs of the production run A will have on the costs of production run B.

COST INCREASES

In September 1968, at the request of the Air Force, the contractor estimated that actual cost of D.D.T. & E. and run A effort would be about \$2.335 billion or \$1.057 billion higher than target cost. The Air Force estimate of D.D.T. & E. and run A, prepared by the Systems Program Office at about the same time, indicated that costs would be about \$2.436 billion or about \$101 million higher than the contractor's estimate. The major difference between the estimates was that the Air Force expected that more direct labor hours would be incurred and that subcontract costs would be higher. In March 1969, the contractor's status report indicated estimated costs had risen to \$2.346 billion or \$11 million higher than the September 1968 study. In recent testimony before the Senate Armed Services

Committee on June 4, 1969, the contractor estimated this cost at \$2.316 million. To facilitate our analysis of the causes of the cost increase, we used the contractor's more detailed estimate of September 1968 rather than the Air Force estimate or the contractor's later status report estimate.

Our review of the expected cost increase on the D.D.T. & E. and run A portion of the C-5A program indicates that cost increases have occurred in all elements of cost—labor, materials, overhead, and subcontracts.

A major area in which costs increased was refining the original design to control weight, eliminate drag, and redesign the wing. As the program progressed it was necessary to make design changes to meet the contract performance specifications. These refinements materially contributed to increased cost. For example, the design refinement of the wing, together with the redesign to reduce drag and the changes made to control weight, all contributed to late release of engineering data to subcontractors and to the contractor's manufacturing branch. This late release of engineering data disrupted the production schedule and additional costs were incurred to recover schedule. New tools had to be made, items had to be installed out of sequence, and more overtime was required. Also, the weight control program contributed to greater use of materials such as titanium, beryllium, and honeycomb which, in addition to costing more, also required changes in the manufacturing process, finer tolerances, and increased labor costs.

Another major contributing factor was the general increases in labor and material costs.

In the area of wages, we found that increases occurred in all skills. The contractor projected that the average factory direct labor rate in 1967 would be \$3.298 an hour, but the actual factory rate was \$3.706 an hour. For example, in 1965 a general machinist earned \$3.77 an hour compared to the current rate of \$4.66 an hour. A tool and die maker earned \$3.77 an hour in 1965 and currently earns \$4.69 an hour.

A major portion of the overhead incurred at the Lockheed plant is allocated to the C-5A program. An analysis of the overhead of this plant indicates that rates have increased because of an increase in the number of indirect employees and increases in overhead costs such as fringe benefits, indirect salaries, and depreciation. The contractor projected that the factory overhead rate in 1967 would be \$4.105 per direct labor hour, but the actual factory overhead was \$4.763 per hour. One of the primary reasons for the increase in overhead was fringe benefits which increased from \$34 million in 1965 to \$62 million in 1968. These fringe benefits, such as vacation, holiday, sick pay and retirement plan, increased primarily because of an increase in the number of employees and additional benefits added by union agreement in 1968. Also, we found the average salary of an indirect employee increased from \$8,132 in 1965 to \$10,259 in 1968.

We found that depreciation charged to overhead increased from \$3 million in 1965 to \$10.9 million in 1968. This increase was due primarily to an increase in the contractor's investment in facilities and equipment which occurred during this period.

The following schedule shows the increase in contractor's costs by major functional categories.

SCHEDULE OF CONTRACTOR'S COST FOR THE C-5A AIRFRAME—D.D.T. & E. AND RUN A

(In thousands of dollars)

	Target cost contract award Oct. 1, 1965	Lockheed estimate Sept. 30, 1968	Difference
Engineering.....	286,542	416,242	129,700
Tooling.....	158,908	236,372	77,464
Production.....	509,417	1,121,967	612,550
Subcontracts.....	245,527	424,948	179,421
Quality assurance.....	30,282	54,447	24,165
Other.....	47,927	81,516	33,589
Total.....	1,278,603	2,335,492	1,056,889

Engineering

Our analysis of the \$130 million increase in engineering cost indicates that about \$47 million is due to the contractor incurring or expecting to incur about 4.9 million more direct labor hours than originally planned, \$24 million is due to higher labor and overhead rates than proposed, and \$48 million is due to increases in the cost of material and other charges. The remaining \$11 million is attributable to numerous less significant factors.

Discussion with contractor officials indicates that the primary reason for the expected increase in engineering direct labor hours was because of design refinements necessary to control weight, reduce drag and redesign the wing. We found that increased cost of materials and other charges is attributable to increased use of computers, flight simulator program cost increases and increased cost of reliability and qualification test programs.

Tooling

Our analysis of the \$77 million increases in tooling costs indicates that about \$20 million of this increase is due to the contractor incurring or expecting to incur about 2 million more direct labor tooling hours than originally planned; about \$22 million is due to increased cost of labor and overhead, and about \$35 million is due to increased material and other costs.

The contractor stated that tooling costs increased primarily because of schedule problems generated by late release of engineering data and increased costs of material and labor. This late release of engineering data was primarily due to the design refinements which occurred in the program.

Production

Our analysis of the \$613 million increase in production costs indicates that about \$239 million of the increase in production costs is due to the contractor incurring or expecting to incur about 45 million direct labor production hours or 21 million more than originally planned; about \$58 million is due to increased cost of labor and overhead; and \$130 million is due to increased cost of materials and other charges. We were unable to determine the reasons for the remaining \$186 million increase. However, we believe a major part of the remainder is due to increases in cost of work performed by other divisions of the contractor, increased costs for components and other direct charges.

The contractor stated that the primary reason for increased direct labor production hours and material costs was because of changes in the manufacturing processes which resulted from design refinements. These manufacturing process changes included greater use of chemical milling processes, unique metal to metal bonding, and changes resulting from the use of titanium, beryllium, honeycomb, and other less commonly used materials. Also, leadtime for the manufacture of forgings, castings, and extrusions increased in 1965 and 1966 which delayed receipt of these items causing out of sequence installation and multiple setup costs.

Contractor officials told us the use of less commonly used materials also contributed to the cost increase because of the higher cost of these materials and an increase in fabrication costs because of the new procedures used to handle and work these materials.

Subcontracts

Estimated subcontract costs increased about \$179 million over the adjusted target costs. Our analysis indicates that approximately \$17 million of this increase represents the difference between the subcontract costs included in the contractor's proposed price and the amounts of the subcontracts awarded; about \$20 million represents negotiated changes subsequent to award; about \$4 million represents an estimate of additional changes; about \$98 million represents an amount the contractor expects to pay out of a total of \$149 million the subcontractors have requested for design changes, schedule recovery and scope changes; about \$36 million represents the contractor's estimated share of subcontractor projected overruns; and about \$4 million represents miscellaneous changes.

Our analysis of the amounts requested by subcontractors for design changes, schedule recovery, and scope changes indicates that five of these subcontractors estimated schedule recovery costs at a total of about \$47 million. These costs represent amounts incurred or expected to be incurred by these subcontractors to bring their programs back on schedule. One subcontractor told us that schedule slippages occurred because preliminary design drawings furnished by Lockheed were subsequently changed which resulted in program delays. Another

subcontractor reported that schedule slippages occurred because of late receipt of engineering data, receipt of defective engineering data, and major redesign which resulted in disruption of normal work planning, out of sequence installation, and the need for changes in tooling. Contractor officials indicated that the reason for subcontractor schedule slippages can be attributed primarily to the design refinements mentioned above.

Quality assurance

Our analysis of the \$24 million increase in quality assurance costs indicates the primary cause is an estimated increase of 2 million quality assurance direct labor hours over the amount originally planned. This increase in hours is attributed to related increases in direct labor hours in engineering, tooling, and production.

Other costs

Other costs, such as customer service, reproduction of data, and spares and administrative expenses, are estimated to be about \$34 million higher than originally planned. Although we did not make a thorough analysis of the reasons for the individual cost increases, we believe that higher costs of labor and material are also being experienced in these cost elements.

CONTRACTOR SEGREGATION OF COSTS

The contractor is required by the contract to segregate D.D.T. & E. and run A costs. This is important because certain run A costs are to be used in determining the price of run B.

In order to assure that there is proper distribution of costs, the Defense Contract Audit Agency (DCAA) makes continuous reviews of the contractor's accounting system, including the procedures for distributing labor and material costs. DCAA also examines into the contractor's classification of C-5A cost accounts to ascertain if the accounts are established to distinguish between D.D.T. & E. and run A costs. In addition, both the DCAA and the contractor make periodic floor checks to test the accuracy of labor as recorded against these accounts.

Also, Lockheed requires that major subcontractors record costs by D.D.T. & E. and run A effort through the issuance of separate purchase orders for each phase of the subcontract work. Both DCAA and Lockheed make periodic examinations of these subcontractors' records to insure the accuracy of the recording of costs.

While the above control procedures appear to be satisfactory if properly implemented, we noted that the Air Force has questioned the distribution of \$15 million of costs to run A which may have been more properly allocable to D.D.T. & E. effort. This question is currently under discussion and has not yet been resolved. We plan to examine into this matter at a later date.

In 1966, the Air Force made a change to the contract, shifting \$104 million in estimated tooling costs from D.D.T. & E. to run A. The amount represented the estimate of costs to manufacture most of the basic tools that were to be used in the program and were to be paid from research and development funds. The balance, and relatively smaller amount, of the estimate of cost to make the tools were included in run A and to be paid from production funds.

We were told by officials of the Air Force C-5A Systems Program Office that this shift was necessary because there were insufficient Government research and development funds with which to continue making payments to the contractor under the D.D.T. & E. phase. The change permitted the Government to continue to make payments for tooling but from production funds rather than research and development funds as was originally planned. However, Headquarters, Air Force officials advised us that this shift was made to charge production tooling to the procurement appropriation in accordance with Department of Defense practices.

The Air Force did not require the contractor to segregate recorded tooling costs between the amount shifted to run A and the amount already in run A. Therefore, we could not determine if the contractor incurred more or less cost for tooling than the target amount shifted from D.D.T. & E. for such cost. Consequently, we are unable to determine whether or not the shift will have the effect of increasing or decreasing the price to the Government for run B.

EFFECT OF ACTUAL COSTS ON RUN B PROCUREMENT

In October 1968 the Air Force estimated that the actual costs which will be incurred by Lockheed for D.D.T. & E. and run A will be about \$2.436 billion or \$1.030 billion higher than the contract target price of \$1.406 billion. To arrive at the target price of the run B airplanes the repricing formula is applied to certain segments of the actual costs under run A. The Air Force estimated the target price of \$539 million included in the contract for production run B would be adjusted to \$1.149 billion or an increase in the target price of \$610 million.

The Air Force estimates that the cost of the engines will be \$754 million or \$130 million higher than target price. The result of the application of the formula is that the Air Force currently estimates that 115 airplanes and engines will cost \$3.923 billion or \$1.354 billion higher than the target price established in 1965. Also, the Air Force estimates that Lockheed will incur a loss of \$285 million in the C-5A program. However, Lockheed testified before the Senate Armed Services Committee on June 4, 1969, that they expect their loss to be about \$13 million. The principal difference between the Air Force and Lockheed's estimate of the loss is that Lockheed is of the opinion the adjustment for abnormal escalation is not considered part of the target cost for the purpose of pricing run B. The Air Force, on the other hand, considers that the target cost should be adjusted for abnormal escalation in pricing run B.

SPARE PARTS

In October 1964 the Air Force estimated that the cost of initial spares would be \$307 million. This amount was not a part of the \$3.116 billion computed by the Air Force as the estimated cost for 120 C-5A airplanes since spares were considered an operating cost rather than an investment cost.

Varying amounts have been estimated for spares. However, the current Air Force Logistics Command estimate for spares and support costs amounts to \$840 million. In addition to increasing the 1964 estimate for initial spares to \$488 million—an increase of \$181 million primarily for additional spares to provide a wartime capability and spares for the larger aircraft—the Air Force has also included \$257 million for replenishment spares and \$95 million for support costs for common aerospace ground equipment and modifications. In recent testimony Air Force officials indicated that a more current estimate would be available by July 30, 1969.

REPORTING OF PROGRAM COSTS AND ESTIMATES AT COMPLETION

Our analysis of actual costs incurred and estimated costs to complete at various dates indicates the Air Force could reasonably have predicted as early as December 1967 that actual costs would exceed the ceiling price. We found that by December 1967 the contractor had incurred about 10 million more direct labor hours than originally planned, had experienced increases in labor, materials, and subcontracts not contemplated, and had experienced changes in types of materials which would increase cost. We estimate these known cost increases, together with the negotiated projections of how much labor and overhead rates would increase through 1973, total about \$352 million. Our analysis shows that as of December 1967 the contractor had incurred or would incur \$165 million in additional labor and overhead costs, material cost indices showed material costs had increased by \$15 million, reports from subcontractors at that time showed costs would be \$128 million higher than the contractor proposed initially, and a minimum of \$44 million in additional costs would be incurred due to material changes.

These known cost increases, when added to the contractor's target cost, placed the probable cost of D.D.T. & E. and run A at that time at \$1.630 billion or within \$32 million of ceiling price. The addition of projections of increased direct labor hours and increased material cost beyond 1967 would have given sufficient indication that the ceiling price would be exceeded. The contractor, in cost information reports prepared about the same time, indicated that probable cost would be \$1.6 billion or within \$62 million of ceiling price.

We noted that certain reports prepared by the Air Force did not include current information on estimated costs at completion. Beginning in June 1968, the Cost Performance Report (R-225) and Contract Summary Report (R-32) contained estimates of cost at completion which were within the contract ceiling price even though an Air Force study completed in May 1968 indicated that costs

at completion would be in excess of ceiling price. The R-225 report indicated by footnote that the results of the May study were not included by direction of higher headquarters but that all parties having a need for the results of the study had been informed of the expected overrun.

We believe that current, complete, and accurate information on cost, schedule, and technical performance, contemplated with respect to major procurements, should be maintained in the Department of Defense. Also, the Congress and interested congressional committees should be kept currently advised of significant changes in major programs. We are currently examining into how this can best be accomplished.

TOTAL PACKAGE PROCUREMENT

It should be recognized that the C-5A program was the first major weapon system procurement on which the total package concept was used. Our preliminary conclusion indicates that this method may be best suited for the procurement of those systems requiring only limited additional development effort and where it is reasonable to break down the Government's requirement into manageable segments and where commitments for contractor performance will not extend over too long a period of time.

It seems clear that the Government prior to contracting for significant production units under a fixed pricing arrangement should have real assurance that the item can be produced and the costs can be predicted with reasonable accuracy. We are, however, giving further consideration to the alternative methods of procurement of weapon systems and expect to have further comments on this matter in the near future.

DEPARTMENT OF THE AIR FORCE,
Washington.

Hon. ELMER B. STAATS,
Comptroller General of the United States.

DEAR MR. STAATS: At the request of the Secretary of Defense, we have reviewed your statement of June 11, 1969, on selected aspects of the C-5A program (OSD case No. 2960) which you furnished to several congressional committees on that date.

The Air Force does not disagree with the overall results of GAO's review. In the belief, however, that you might wish to more precisely portray the status of the C-5A program, we are submitting the attached comments applicable to certain of the details of your statement.

We would be pleased to consult at any time with you or your staff on any of the appended comments.

Sincerely,

Attachment.

COMMENTS ON GAO REPORT

Inaccuracy or the lack of clarity noted in the Air Force review of the June 11, 1969, GAO report are discussed below, according to the page of the report on which they occur. Suggested changes are underlined.

Page 2, change the second paragraph to read * * * contract in the amount of \$6 million. An additional \$1.125 million was funded each contractor to provide standby costs during the 5-week slip in contract award announcement.

Page 3, paragraph 3 reads * * * the estimated, or target price of the Lockheed contract * * * the word "or" should be deleted. Paragraph 4 now reads * * * target price of \$624 million including \$165 million for the run B option. To be more accurate it should read * * * target price of \$459 million and an estimated target price of \$165 million for the run B option.

Page 4, a brief mention was made of the change from a 85/15 to a 50/50:70/30 share arrangement. As additional information an analysis of the reason for this decision is shown as attachment A. Change paragraph 4 to * * * run A by over 80 percent. Change paragraph 5 to * * * prior to February 1, 1969, to more accurately portray the data.

Page 5, change paragraph 1 to * * * scheduled for 1971.

Page 6, change \$840,000 to \$777,000 because the column is headed "Air Force" and the \$840,000 is a field command estimate. Delete the sentence in the note beginning * * * subsequently, the Air Force requested * * * and insert * * *

the contractors responded to the Air Force request for proposal with a somewhat larger airplane. The Air Force did not "request" or even indicate the weight parameters. They specified performance requirements. The column headed "Contract target prices October 1965" should read "Contract target prices adjusted for sharing arrangement change."

Page 7, paragraph 1, \$2.316 billion should be \$2.316 billion.

Page 8 through 13, no comments can be made on labor and overhead rates, or on the analysis cost increases by functional area without access to the GAO work sheets. However, on page 9, the column headed "Target cost contract award October 1, 1965" should read "Target cost adjusted for sharing agreement change."

Page 14, paragraph 5 shows the initial tooling transfer as \$104 million. The amount actually transferred by Lockheed supplemental agreement 24 (July 1, 1966) was \$104,540,000 which if rounded would be \$105 million.

Page 15, paragraph 2 is misleading. To precisely describe the activity the following is suggested: * * * this transfer of tooling costs brought such costs into line with OSD budget practice to apportion the tooling to include production aircraft for which it was used, rather than charging it all onto the first few development aircraft. The impetus for making the change grew out of the fact that research and development funds in 1966 were low, and R. & D. costs must be funded on a level-of-effort basis. This change permitted the Government to continue to make timely payments to Lockheed for their incurred tooling costs. It did not increase contract target cost, price, or ceiling.

Page 17, "spare parts." The costs shown are a breakdown of the \$840,000 discussed in page 6 above. The breakdown should be based on \$777,000 as follows:

Total, from \$840 to \$777 million.

Initial spares, from \$488 to \$482.6 million.

Increase, from \$181 to \$175 million.

Replenishment spares, from \$257 to \$188.5 million.

AGE/Mods, from \$95 to \$106.1 million.

Page 17, 18.—These paragraphs state that the Air Force should have known and thus could reasonably predict as early as December 1967 that actual cost would exceed the ceiling price. The following chronology of the reports available and other significant events indicate that Headquarters, U.S. Air Force could not have made this projection. In retrospect, there is no quarrel with a conclusion that on the basis of data available at the contractor's plant such a forecast could have been made.

August 1967: The SPO received the semiannual cost information report (CIR) as of June 1967. A potential cost growth was noted, but on the basis of available actuals was believed to be on the order of 10 percent. No CIR was received from contractor between August and February as the requirement was semiannual.

February 1968: Receive CIR data as of December 1967. Six months of additional actual data showed an increase in the cost trend noted in August 1967. An indepth analysis by a special cost team to determine the accuracy and impact of the new data was started.

May 1968: The 3-month cost team study indicated that costs would, in fact, show a substantial increase. This increase was immediately reflected in PCR 68-126, prepared in June 1968. The cost team recommended another indepth study should be undertaken as soon as the accumulation of additional actuals would make it feasible. Thus the groundwork was laid for the effort which became the September-October estimate of \$4.348 billion cost to the Government. It is this estimate, and the accompanying contractor estimate of \$2.335 billion (for Lockheed only) which GAO has addressed in their February-May 1969 review.

Page 18.—The implication in paragraph 3 is that the Air Force did not disclose cost escalation to proper authorities. On the contrary, during this period a special cost team was then at work and their findings were being presented to key people involved with the program at the highest levels. It was also included in the DOD top management selected acquisition reports (SAR). These data were not included in routine Air Force status reports.

Page 19.—GAO recommends maintenance of current, complete and accurate information of cost, schedule and technical information on major procurements. In early 1964 the Air Force began a concerted effort to improve weapon system acquisition management by the development and application of criteria for measuring contractor cost, schedule and technical performance. OSD subsequently adopted this effort and published a generalized cost-schedule control specification

(C/SCS) criteria in DOD Instruction 7000.2 in December 1967. The Air Force is now applying the C/SCS criteria to most of the major weapon system contracts and is in the process of validating the contractor's system for application against the criteria.

ATTACHMENT A—COST SHARING (LOOKHEED)

The decision was made within the first few months to change Lockheed's sharing arrangement from the 85/15 flexible to a 50/50:70/30 basis. Since this also changed contract target price and ceiling by about 3.2 percent, the logical question is, "Why was this done?"

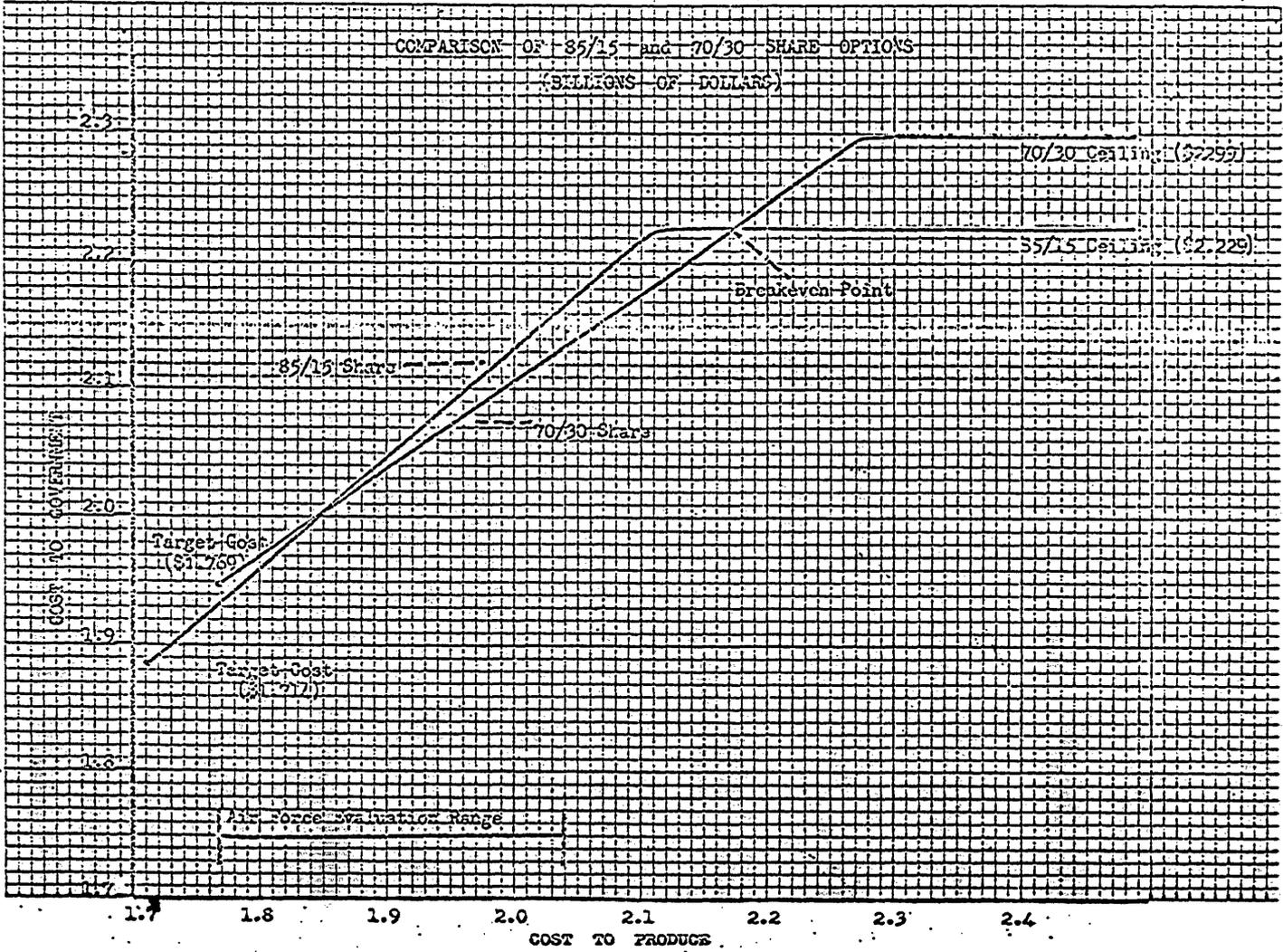
The maximum estimated cost to produce the aircraft was believed to be about \$326 million more than target cost, or around \$2 billion for 115 aircraft. Mathematical analysis showed (as in illustrated by the accompanying chart) that at a cost of \$2 billion, or indeed up to a cost of almost \$2.2 billion the Government's cost would be lower with the 70/30 share line. This \$2.2 billion was a half billion over target cost—or half again the maximum overrun then projected. It was believed that this provided more than adequate leeway for the Government, and the option was exercised.

The costs resulting from this change are shown below :

[Dollars in billions]

	Original	Revised
Target cost.....	\$1.714	\$1.769
Target profit.....	\$0.172	\$0.177
Ceiling.....	\$2.229	\$2.299
Quantity.....	115	115
Target cost.....		\$1.714
Maximum projected overrun.....		\$0.326
Projected final cost.....		\$2.040
"Breakeven" point.....		\$2.173
Difference between target cost and breakeven point.....		\$0.459
Difference between projected final cost and breakeven point.....		\$0.133

Note: Attached is a 1965 memo for the record which reflects procurement management's official thinking at that time.



NOVEMBER 30, 1965.

MEMORANDUM FOR RECORD

Subject: Cost Sharing Arrangement for the C-5A Airframe Contract.

1. The contract for the C-5A airframe was awarded to the Lockheed Georgia Corp, which submitted proposals based on three cost incentive formulas, any one of which can be selected by the Air Force:

- (a) flexible incentive;
- (b) 50/50 below target and 70/30 above target; and
- (c) 50/50 below target and 85/15 above target.

2. Headquarters AFSC and the Air Staff have recommended alternative b and the Secretary of the Air Force concurs.

3. The most critical consideration to the decision is the probable actual cost. The Air Force evaluation group estimates \$1,800,000 and OASD (SA) estimates \$1,907,000. In this cost range, and up to \$2,170,000, the price to the Government would be \$20 to \$30 million lower under the 50/50-70/30 pricing arrangement. At a cost of \$2,170,000, the overrun would be 17 percent and 14 percent respectively, over the Air Force and OASD (SA) estimates, and an overrun of such magnitude is considered improbable.

4. Therefore, although the 50/50-70/30 arrangement has a ceiling that is \$70 million higher than the flexible incentive, it was directed that alternative b, 50/50-70/30, be used.

R. G. RUEGG,

Major General, U.S. Air Force, Asst DCS/S&L.

STATEMENT OF HON. ROBERT C. SEAMANS, JR., SECRETARY OF THE AIR FORCE

Mister Chairman and members of the committee, your staff has informed us of the principal points which you desire covered during this hearing. I shall address each of these.

C-5A—MISSION AND CHARACTERISTICS

Our national interest dictates that we have the capacity to support the rapid deployment of U.S. forces. The capability to provide this support with a rapid response of limited but effective U.S. forces followed, if necessary, by a more massive buildup, greatly reduces the risk of smaller incidents developing into major conflicts. The capability for rapid deployment gives us added flexibility in planning for peacetime deployment and basing that we have never had before.

The rapid deployment of effective forces requires a capability:

- (a) To airlift all the necessary Army equipment including weapons and vehicles;
- (b) To airlift the troops with their equipment;
- (c) To organize the force arrival into effective increments; and
- (d) To provide sustaining support.

The design of the C-5A was optimized to accomplish this. It will transport all items of weapons and equipment of an Army division concurrently with the personnel associated with the equipment. Thus, unit integrity is maintained.

To avoid possible confusion with respect to the mission of the aircraft, let me point out that the C-5 is not a personnel transport; rather, it carries only the personnel associated with the equipment transported.

No other aircraft can accomplish this mission. The C-141, our largest operational jet transport has established an outstanding operational record. However, it can carry only about 65 percent of infantry division vehicle types and 71 percent of armored division vehicle types. Such essential items as tanks, bridge launchers, armored personnel carriers, and helicopters cannot be carried in the C-141.

The C-5A gross weight is approximately twice that of the C-141. It has about three times greater payload/range capability. Its cargo compartment has over four and a half times the volume of the C-141. Yet, the C-5A can operate from more primitive airfields.

Many unique features have been designed into the C-5. These include full width openings, fore and aft, which provide a drive-through capability; high flotation landing gear which permits operation on relatively unprepared airfields; a kneeling landing gear to lower the cargo floor to truck-bed height to facilitate bare base loading and unloading; a complete aerial delivery system; a heavily stressed cargo floor for free maneuvering of heavy vehicles; self-con-

tained avionics and navigational systems which permit adverse weather landings without ground based aids; and a number of other special features which are available in no other aircraft.

Manufacture of the first five C-5A's, which are development test aircraft, has been completed. Four of these have flown over 300 hours during a total of more than 100 flights. The fifth will start flight testing this month. The initial test results have been encouraging. Normal development problems have been encountered. However, our best estimate, based on preliminary data accumulated to date, is that the airplane will meet all performance guarantees.

The first operational C-5A is scheduled for delivery to the Air Force in December of this year. Our first squadron will achieve its initial operational capability next summer, June 1970. This is a slip of 6 months.

PROGRAM AND FUNDING

For planning purposes our current program calls for the procurement of 120 aircraft for six squadrons. Fifty-eight aircraft are on contract. Five R.D.T. & E. aircraft and 53 production aircraft constitute run A. The run A production aircraft were approved in the 1967, 1968, and 1969 budgets in quantities of eight, 18, and 27, respectively.

An option was exercised prior to its expiration date in January 1969 to procure an additional 57 aircraft, known as run B. Twenty-three of these are in the fiscal year 1970 budget now before the committee. These aircraft will complete the fourth squadron. A decision on further quantities of aircraft will be made in the formulation of the fiscal year 1971 budget. I want to emphasize that this option is basically for contractual planning purposes. The Government is not committed to procure any of these additional aircraft. The Congress must first approve.

The Government's contractual liability, as governed by statute, is limited to the 58 aircraft on contract plus \$72 million which was in the fiscal year 1969 budget for long lead items for aircraft in the fiscal year 1970 budget.

Through fiscal year 1969 the Congress has appropriated about \$2.5 billion in R.D.T. & E. and procurement funds for the C-5. Of this amount about \$1.9 billion has been expended. The fiscal year 1970 budget requests funding for the C-5 as follows:

	<i>Millions</i>
R.D.T. & E.-----	\$34.2
Procurement -----	742.8
Weapons system, (above line)-----	533.0
Spares, (below line)-----	209.8
Over target-----	225.0
Total -----	1,002.0

The aircraft procurement amount is for the production of 23 aircraft at an average gross flyaway cost of \$23.522 million.

The overtarget amount needs special explanation. Congress requires us to fully fund procurement for the target amount for each fiscal year's procurement. Thus, each fiscal year's buy must be adjusted to cover the difference between target and estimated ceiling. For instance, the eight aircraft in the fiscal year 1967 buy will cost us more than the target and consequently more than was budgeted in fiscal year 1967. Likewise, the 18 for fiscal year 1968 and the 27 for fiscal year 1969 will cost more than targeted and budgeted. For the fiscal year 1967 through 1969 programs, we have tentatively identified a funding deficiency of \$649.1 million which Secretary Laird has included in his report to the Congress on overruns. Since expenditures and aircraft deliveries from a given year program extend over 2 to 3 years, we estimate that we need \$225 million of this deficiency amount in fiscal year 1970 to apply to the buys in earlier year budgets.

The amounts required later will be reassessed in the light of actual experience and appropriate amounts will be requested in the fiscal year 1971 and fiscal year 1972 budgets.

Addressing this large amount at one time highlights a major problem with this type of contract. As we discussed with the House Armed Services Committee, the concept underlying the contract for the C-5A is good. The mechanics of its ad-

ministration, however, need revision. Building a fence around the entire program is good, but we need a very careful appraisal of exactly where we stand at least once a year. In one sense we are now dealing with a 4-year accumulation of problems. We should have been able to deal with them year by year.

COST ESTIMATES

The first cost estimate made for the C-5 was \$3,116 million. This was made in October 1964. This estimate was based on parametric studies to determine the cost of a theoretical aircraft that could carry a payload of 100,000 pounds for 5,500 nautical miles. It was estimated that such an aircraft together with its fuel and payload would gross 645,000 pounds, some 83,000 pounds less than the aircraft that was later actually contracted. I emphasize that this estimate was a rough standard which we hoped would be accurate to within 10 to 15 percent. The basic purpose of the estimate was to evaluate the economics of the C-5 and to serve as a reference against which to evaluate contractor proposals and to measure program accomplishment.

This estimate was made in constant 1964 dollars. At that time we were accustomed to doing business on a year-to-year basis and could not anticipate the drastic effect that inflation, as reflected by subsequently rapidly rising costs, would have on the program over a period of nearly 10 years. In retrospect, our cost analysts, most certainly, should have incorporated a large factor to compensate for inflation. However, I am sure that had they predicted the drastic inflation that has actually taken place, it would not have been accepted at the time.

The second cost estimate was made in April 1965. Again, it was based on parametric studies and was to be used as a rough standard to evaluate contractor proposals. This estimate was \$3.102 billion—about the same as the earlier estimate, and contractor proposals were reasonably close to these estimates.

In our cost tracking procedures, we had indications in 1966 and 1967 that Lockheed would be overtarget and in our preparation of the fiscal year 1969 budget in the fall of 1967 we raised our background estimate to some \$3.3 billion and indicated in congressional testimony last year that the contractor's costs would increase by \$250 million.

Just after the hearings last year, we had reports from the field indicating a much larger overrun. Since we were dealing in estimates their validity was questioned and we directed further study. In June of last year this study indicated that the program might cost some \$3.8 billion. Again, the estimates were questioned and an intensive study was directed culminating in an October estimate of cost to the Government of \$4,348 million. It is this estimate that we are currently carrying. I would point out, however, that it is also questioned. Lockheed, for instance, does not agree with it—and I would emphasize that we are dealing with estimates of costs that will not be fully incurred before 1973-74.

When this estimate was accepted as reasonable by us, we then went back to examine our original background estimate to determine where we had been wrong. We rationalized the difference between the original estimate and the \$4,348 million cost to the Government estimate as follows:

	<i>Millions</i>
Original estimate.....	\$3, 116
Inflation (conversion of 64 constant dollars to current dollars).....	500
Technical difficulties.....	382
Adjustment for a larger aircraft.....	350
Total, estimated cost to Government.....	4, 348

However, I must add a further clarifying comment. The estimate of \$4,348 million is an estimate of "cost to the Government." Later, I will point out that on the basis of estimates, we expect Lockheed to lose some \$285 million. This makes a total estimate to produce of some \$4.6 billion.

This, then, is the current "background" estimate. Our background estimates thus, began at \$3.1 billion, were raised to \$3.3 billion for the fiscal year 1969 budget, and are now \$4.6 billion.

Before discussing overruns, let me address the program content of the estimates I have discussed. They include development and aircraft production only. They do not include spares, either initial or replenishment. There are two reasons for this. First, the target costs of the contract cover only development and aircraft

production. Second, spares consist of two types, initial and replenishment, and in reality, are operating costs. They are reflected in varying amounts, depending on the number of years of operation covered and the utilization rates of the aircraft. So, to clearly separate and identify acquisition costs, we cover only development and aircraft production in our basic estimates. This is the way we have customarily discussed estimates with the committee of Congress.

I would agree that it may be appropriate to include initial spares.

OVERRUNS

A \$2 billion overrun is frequently quoted. I think that it is important for the committee to understand what is involved. There are a number of ways to reflect the increases in this program. I will describe each briefly.

a. \$1,505 million—this is the difference between the original background estimate of \$3,116 million and the current background estimate of \$4,621 million described above.

b. \$1,363 million—this is the difference between the original contract target estimate of \$2,985 and current estimated ceiling of \$4,348.

c. \$618 million—this is the difference between the estimated adjusted target of \$3,730 million, made in accordance with contract provisions, and the current estimated ceiling of \$4,348 million which is the cost to the Government. This is the estimated overrun as normally defined.

d. \$2.0 billion overrun—this is roughly the difference between one background estimate, with some spares added, \$3.4 billion, and a later estimate, \$5.3 billion, with spares and other items added, which were not included in the original estimate and not fully validated as requirements.

Such a comparison, thus, involves apples and oranges.

I have directed that Secretary Whittaker examine these various differences in his review of the program, which he will cover later. I will expect him to define what should appropriately be considered either as an "overrun" or "cost increase."

CONTRACTING

I will discuss briefly the contracting technique used for this program. It was a new approach which we called Total Package Procurement. Simply stated, it was an attempt to secure firm contractual commitments for performance, schedule and cost for R. & D. and Production of the maximum feasible portion of a total weapon system program in a truly competitive environment. In the past we traditionally completed the research and development phase, about 20 percent of total system acquisition costs, and then negotiated the production requirements for aircraft and associated data and equipment at a later date as best we could with the single contractor who had done the development work. This virtually eliminated effective competition for 80 percent of the total acquisition costs involved.

In view of the risks inherent in making commitments for operational hardware before it has been developed, as well as forecasting market conditions through 7 to 9 years into the future, a contractual framework carefully tailored to these risks was required.

A number of special provisions were incorporated into the contract to reduce unreasonable risks to both the Government and to the contractor. First, a special provision assigns to Lockheed responsibility for total system integration and performance. Second, was the use of a fixed price incentive type contract. The C-5 contract provides for sharing between the Government and the contractor in the event the actual costs are either less or greater than the target cost proposed by the contractor. In the event the contractor exceeds the target cost the Government will pay these costs up to a maximum of 130 percent of the established target cost. This 130 percent maximum liability is called the ceiling. Beyond that the contractor must pay all costs to complete his contract performance. For each dollar of cost over the target which the Government pays up to ceiling, the contractor (Lockheed) must give up a portion of this profit. Thus, the contractor is motivated not to exceed target cost. We commonly call this a profit sharing arrangement.

A provision was included for an equitable adjustment of contract prices for changes in law which might increase labor costs, such as changes in Social Security rates or other changes in Federal statutes covering work conditions and fringe benefits.

Another provision provided an adjustment of contract price, either up or down, in the event there was an abnormal fluctuation in labor, material, equipment and subcontractor costs over the projection included in the contract.

A major provision of the contract is the repricing associated with a later option. Again, because of the uncertainties involved, this provision was designed to reduce catastrophic losses to manageable proportions or, on the other hand, if costs were substantially below target, to reduce excessive profits by providing a refund to the Government.

This repricing formula was in the proposed contract to which all the competitors bid. It provides that if the actual cost of the 53 production aircraft in run A exceeds the 130 percent ceiling, an upward price adjustment would be made for the next production run, i.e., run B.

Our estimate is that both Lockheed and General Electric will exceed the contract ceiling for R.D.T. & E. plus run A. Thus, the repricing formula would be employed in both cases to reset the production prices for run B.

Considerable misunderstanding and controversy have developed concerning this feature of the contract. It has been alleged that it permits the contractor to reap large profits on run B by running up the costs on run A. Also, that the formula provides a reverse incentive. These subjects are quite complex and do raise questions that cannot be clearly answered at this time.

The Air Force estimates that Lockheed will be in a loss position of \$671 million at the end of R. & D. plus run A in June 1971. This would appear to be a catastrophic loss—and the formula was designed to prevent this. Application of the formula to run B reduces the estimated loss to \$285 million.

I would point out that Lockheed does not agree with these estimates. They consider our estimates too high, and I hope they are right. There are also contract interpretations which will affect Lockheed's outcome, as well as the cost to the Government.

"Reverse incentive" means that for every additional dollar that Lockheed spends once it is over ceiling on run A there could be more than a dollar increase in ceiling in run B. By our calculation this could happen in the event we buy 91 or more aircraft which is the 33d aircraft on run B. The 33d aircraft would be part of a fiscal year 1971 buy of 20 aircraft which would constitute the fifth squadron.

A thorough reexamination of this situation will certainly be made prior to the procurement of a fifth squadron. If the decision is made to procure the fifth squadron and the possibility of a reverse incentive exists, an appropriate modification of the contract will be made prior to executing the order.

Even if the additional squadrons are not procured, a contract modification may be made, depending on Secretary Whittaker's findings.

SOURCE SELECTION

The source selection process was probably the most comprehensive ever conducted. The entire process was summarized in a 30-page memorandum from Secretary Zuckert to Secretary McNamara dated September 23, 1965. This memorandum has been available to the Armed Services Committees of both the Senate and the House, as well as to the Subcommittees for Appropriations of both the Senate and the House. The memorandum states that the source selection board, comprised of two Air Force major generals and two brigadier generals and charged with conducting a complete evaluation, unanimously recommended that Boeing be selected. The memorandum pointed out that the Air Force Chief of Staff, the Commander of the Air Force Systems Command, the Commander of the Military Airlift Command, and the Air Council by a three-fourths majority recommended Lockheed. It stated that the Commander of the Air Force Logistics Command recommended Boeing. The committee has been provided a copy of the memorandum from the Chief of Staff of the Air Force to the Secretary of the Air Force recommending Lockheed.

Our files on source selection have been made available to the GAO.

REPORTS TO CONGRESS

In the minds of many, public reports have created the impression that the Congress and the public have not been informed on a timely basis of the C-5 situation.

As I have previously indicated, the Air Force told the Congress last year of an increase of roughly \$250 million. At that time the later increases had not

been identified. These were identified and agreed to by OSD in the formulation of the fiscal year 1970 budget—not completed until last December or early January. On January 13, Secretary Clifford's classified statement, containing a comprehensive discussion of the situation as we are describing it today, was delivered to the appropriate committees of the Congress. An unclassified version of this statement in somewhat less detail was also provided to the committees and to the press.

THE ECONOMICS OF THE C-5

Earlier, I addressed the mission of the C-5 aircraft. We believe it is difficult to question the need for its truly tremendous capability to move quickly a significant military force anywhere in the world. It also opens a new era in air cargo. It does both more economically, even at its increased costs, than can be done any other way. One measure of its economics is "10 year cost per ton mile," that is, procurement plus 10-year operating divided by ton-mile capability. This is estimated at 12 cents per ton mile versus 16 cents for the C-141, its nearest competitor. Another measure is estimated direct operating cost as we compute it for the Airlift Industrial Fund. The C-5 costs are 2.9 cents per ton mile versus 5.3 cents for the C-141. The C-130 is 9.7 cents per ton mile—and the C-124—19.7 cents.

SUMMARY

In summary, Mr. Chairman, we find ourselves in a very difficult situation with the C-5 program. To some extent an impression has been created that the large overruns of the contractor are simply being accepted, and that he will emerge from the contract with large profits. Nothing could be further from the truth. If our estimates are correct, and the contract is terminated at the end of run A, he would have what could be judged a catastrophic loss—a situation which the overall contract was designed to prevent. Even if the added quantities of aircraft for run B are approved and placed on contract, he will still be in a large loss position—if our estimates, which he disputes, are correct.

From the Government's point of view, we have an extremely tight contract, exerting unprecedented pressure on the contractor. As it now stands, it will unquestionably permit the Government to procure the C-5 at less cost, than under any other type contract.

The extremely complex contract has contributed to confusion and misunderstanding to those not intimately familiar with it.

We obviously have to insure a better understanding of the situation. We will ascertain what, if any, changes are necessary. The first step is to complete the review which Secretary Whittaker is conducting at my and Secretary Laird's direction.

In the meantime, it is clear that the program is going to cost more than originally estimated, regardless of the semantics of "overruns" and agreement as to what constitutes an overrun. Exactly how much the added costs will be, no one can be sure. It is clear that they are upward of a billion dollars, probably on the order of a billion and a half, with a large part attributable to inflation. The aircraft itself is proving to be excellent, fully capable of performing its mission, and worth its cost. There have been misunderstandings and erroneous impressions to which we have unquestionably contributed. However, our books are completely open to competent authority and we welcome this opportunity to state our case to the committee and to the public.

INTEREST IN DEFENSE SPENDING

Mr. MAHON. How do you evaluate and explain the apparent acceleration of interest in and out of Government in defense spending?

Mr. SHILLITO. First, Mr. Chairman, I think we should state the obvious. That is, interest in Defense spending is directly related to the frequency with which Defense is in the news. Every day, we hear of the number of war casualties, both United States and foreign; we read of the number of aircraft downed—and search the news in hope that the pilot and crew have been picked up; we read of other activities of U.S. Forces stationed around the world; regrettably, we read and see pictures of mistakes that are made—the sinking of the submarine,

Guatarro, and the destroyer *Evans*, cut in two; incidents such as the capture of the *Pueblo* keeps the Defense Department in the daily newspapers. Thus, the outpourings of the newspapers, radio, and television provide daily news of Defense Department activities. Mothers and fathers with boys in service seek news relating to the military departments. There is genuine home interest and I personally am happy to see strong interest in the Defense Department because, surely, a well-informed public will help maintain and preserve the strong democratic processes of our Government.

Interest in Defense spending is caused by the size of the Defense budget—the amounts of money spent for defense during the past 10 or 20 years is news. I understand that it has been estimated the United States has spent a trillion dollars for defense since World War II. For you members of the Appropriations Committee who carefully review the requests of the Executive for large appropriations for arms, ammunition, aircraft, et cetera, know, of course, that these funds must come from taxes. Taxes are high today and many people associate high taxes with the Defense Department's activities. Certainly the Defense budget represents a significant portion of the total Federal budget. Therefore, payment of taxes to support the Federal Government reminds the taxpayer of Washington, D.C., and the Defense Department.

Interest in Defense spending is sparked by news of published reports on waste and mismanagement. I believe that we would all agree that DOD can't spend \$40 billion a year for military supplies and equipment and not make some mistakes. It's been said that, if we made mistakes in only one-tenth of 1 percent of our procurement transactions, there would be over 10,000 miscues each year. Fortunately, we have a system in our Government which gives great exposure to these mistakes—if you are on the receiving end, you might feel that this is too much exposure—but that's the system and I endorse it.

The GAO has a corps of auditors constantly probing, reviewing Defense activities—all of our contracts, the military supply system, and all Defense business. They uncover mistakes that have been made. Looking at transactions after the fact, they properly report these mistakes to the Congress. Their reports are published for everyone to read and their critical investigations make news. Their reports are picked up by some Members of Congress who apparently believe in the theory that the only way to improve the Defense Department's management of the \$70-\$80 billion a year is to keep hitting them in the head with a two-by-four. The theory is that a GAO report, coupled with an indignant Member of Congress, can get attention. The adverse publicity, frequently an overkill—as harsh as it may seem—will make the managers of the Defense Department more careful and make them do a better job of controlling the programs. There is something to be said for that theory of management. There have been many instances which warrant the Defense Department's being hit on the head. Certainly, we, as managers, look at many transactions and we wish we could do some of them over; but time is a vital factor in maintaining preparedness and effectiveness of fighting forces throughout the world and we just don't have the luxury of all the time that we would prefer to have.

I'd like to make one other observation with respect to your question on the acceleration of interest in defense spending and I do this with great respect to the members of this committee, to the Congress, and the Senate. My observation relates to the subject of politics. It is obvious that there is a disillusionment in a large segment of the public with respect to our military successes—or the lack of them—in Vietnam. It is said frequently that this is not a popular war. There are open attacks on military tactics; that is, to take a hill or to not take a hill. There are many things being bought which have never been built before—or even fully designed. Hence, there is a great deal of opportunity to criticize partial or total failures of tremendously large, complex undertakings. Occasionally, it seems the attacks are made by politicians—critics of the Defense Department—who seem to be saying that they are taking the side of the taxpayer in criticizing Defense for the current conditions; but their comments have prompted some Members of Congress to question the propriety of the criticism. One Member of Congress recently summed it up this way:

The question remains, of course, whether the competition among certain critics who practice the politics of overkill is helping the public to really understand the complicated problems involved. There are Members of Congress who are trying to outdo each other in beating the military on the head or kicking them lower down, because that seems the popular thing to do, and the competition for publicity is strong. Publicity is a demanding mistress. She makes some elected officials forget their sense of responsibility, not to mention their manners.

These are some of the reasons for the accelerated interest in defense spending. There are others. For instance: Our problems on the campuses, our problems in Vietnam, the ghetto problems—all of these things intertwined find a number of people looking at our national priorities, and raising the question of how defense fits into this national priority picture. Mr. Moot, in his discussions with you yesterday, went into some detail as to what has happened as regards our defense spending as it relates to the gross national product, and what has happened as far as actual dollars on a discounted basis going back to pre-Southeast Asia. You may recall from these discussions with Mr. Moot, the references to overall growth in defense spending are really not clear when you look at defense spending alone.

Mr. MAHON. Mr. Moot yesterday presented the committee with a very interesting statement.

Mr. SHILLITO. Yes, sir.

Mr. MAHON. There were some things that were new in the statement, but many things that were repetitious of other information which we have had.

Mr. SHILLITO. Yes, sir.

Mr. MAHON. In other words, you are saying to us now that the war and the high cost of Government and the conditions in the cities, and so forth, has caused the American people in a sense to look at priorities and in looking at priorities their attention has been focused on defense spending.

Mr. SHILLITO. This is my personal opinion, Mr. Chairman. I think this has had a significant impact.

THE RIGHTS AND WRONGS OF DEFENSE SPENDING

Mr. MAHON. If you had to write an essay on what is right with defense spending and what is wrong with defense spending, I wonder what your main points would be? Or maybe you would not be able to find anything right—and I speak facetiously—and have to put it all on the other side of the ledger.

Mr. SHILLITO. Mr. Chairman, as you know, I have had quite an exposure to both the industrial side of the house and to the military side. One point on the right side, I believe, is that the defense environment is much more closely controlled than the rest of the spending in our society. It receives a scrutiny that is certainly not the norm in the rest of our society.

Mr. MAHON. You mean the rest of Government or the rest of society?

Mr. SHILLITO. The rest of our society.

I am talking about industry in general. There is little doubt in my mind but that defense spending is carried on more efficiently and more effectively than buying in the rest of our society. As far as what is wrong, I would say it is an awfully time-consuming job. Our ability to make decisions is frequently encumbered by the procedures we have to go through. This makes it extremely exasperating at times. One of the current problems, of course, is the environment. Defense conducts roughly 11 million contractual actions per year. However, over 7 million of them are less than \$2,500 each and represent a very small percentage of the total value of our annual purchases.

The ones that receive the most attention—our major weapons systems buys—go through development, into production, and continue over roughly 5, 6, or 7 years. We are buying equipments that incorporate many changing technologies—and we are attempting to negotiate or establish a price in today's environment reflecting what the price is going to be 5, 6, and 7 years downstream in this changing technological environment. It is a terribly severe problem in the defense spending environment. These are just a few of the things that occur to me.

Mr. MAHON. For the record, will you please expand that essay to meet head on some of the issues as to what is right and what is probably wrong. Will you do that?

Mr. SHILLITO. Yes, sir; I would be delighted to. In fact, it is an excellent point.

(The information follows:)

WHAT'S RIGHT AND WHAT'S POSSIBLY WRONG WITH DEFENSE SPENDING TODAY

Mr. Chairman, I would like to start on what may be the easiest—certainly, what is currently the most popular—part of your question; namely, what's possibly wrong with defense spending. I select this order because I want to reserve until last the most important part of the question; namely, what's right with defense spending.

First, what's wrong. Obviously, one criticism has been that there is too much defense spending. Following Pearl Harbor, it was the resolve of America that this country would never again be unprepared to retaliate immediately to enemy attack. The heroism of American soldiers during World War II provided the

Military Establishment with the role of leadership. Since World War II, the Congress has provided the military with everything that it wanted—and more. There was a sizable reduction in the military budget about 1948 when military expenditures reached a low of \$10 to \$12 billion. Five years later, however, during the Korean war, military spending reached a high of \$44 billion. Thereafter, while there was a relatively small reduction in military spending in 1955, there has been a steady rise in the billions of dollars made available to the Defense Department since then to support our military forces around the world—\$39 billion in 1958, \$48 billion in 1963, and it reached a high of \$77 billion last year. This was seven times the military budget for 1948.

As a percentage of GNP, military outlays reached a post-World War II low in 1948 at 4.5 percent. The high reached during Korea was 13.4 percent of the GNP in 1953. The Vietnam high was 9.5 percent, reached in 1968. It is estimated that the fiscal year 1970 military outlays will consume 8.1 percent. Despite the fact that the Vietnam levels were below those which prevailed during Korea, the size and cost maintaining the military has been sharply challenged.

Another thing that people say is wrong with defense spending is that it is not achieving its objective. We have maintained large military forces all over the world for the past 20 years—and this costs a lot of money; and despite our sincere desire for peace, we have failed in our basic objective of convincing the world that we want peace and not war. Our younger citizens, particularly, seem to be saying, why do we spend all this money on maintaining a military force around the world when the results seem to be unsolvable problems like Korea and Vietnam? They add that we will probably have to spend more money to maintain military forces in these areas just like we have in Europe.

Another thing that is said to be wrong is the pervasiveness of military spending—it's spread throughout the entire fabric of our economy. This might be considered both good and bad. That is, it provides millions of jobs in thousands of cities throughout the United States, but the "job-association" creates an interest in the Defense Department. When we add television, we have the first war that we have literally been able to watch during dinner. The TV has brought this war into every living room. We have a great abundance of armchair strategists who are solving the Vietnam war problems—who are redeploying our forces from all over the world back home and who naturally develop an eroding confidence in the military when our national position is in disagreement with the individual opinions of our living room strategists.

An additional criticism is that defense spending drains resources from other critical U.S. needs. As long as we have 3.5 million men under arms, there will be a need for large outlays for airplanes, tanks, missile systems—and, of course, boots and shoes; but if we spend \$40 billion for military equipments, other domestic programs, including air pollution, water pollution, highway construction, school and hospital programs, urban redevelopment projects, and numerous other very beneficial programs must be held in abeyance or deferred. The proponents of those programs—and, Mr. Chairman, I personally endorse using our resources to further those very worthwhile national programs—the proponents of those denied programs are vocal and critical of defense spending.

There is something else that is said to be wrong with defense spending; that is, it is economically wasteful. We spent \$4.5 billion last year for ammunition. There is probably no greater economic waste than an exploded bomb and U.S. Forces have exploded millions of dollars' worth in the past 3 years. I have to agree that this is economically wasteful and I add to our critics that an aircraft shot down and destroyed in Vietnam is economically wasteful; but I want to quickly add also that the economic waste associated with the Vietnam war should not be laid at the doorstep of the Defense Department. We should all share—the public and the Congress—in the decisions of our Nation. The full story of our current brave efforts in Southeast Asia have not yet been written. I am hopeful that history will finally record this period as the test of strength of a great nation—one in which we have great pride—one in which our successors will always be proud.

Returning to your question on, "What's wrong with defense spending"—it's said to be a heavy contributor to inflation. Economists advise us that, when money is spent for productive purposes, that is, automobiles, washing machines, machine tools, etc., there is just as much supply created as demand. They go on, however, and say, "When money is spent for war, no marketable supply is created to offset the demand and the result is a bidding up of prices." The Wall Street Journal article which you mentioned earlier in the testimony refers to this

subject and quotes a New York economist as saying, "Mr. Jones, who builds washing machines, and Mr. Smith, who builds bombs for the Air Force, both earn \$200 a week; but neither uses his income to buy bombs and both need washing machines. The result: washing machine prices are bid up as the supply of funds available to buy washing machines grows much more rapidly than the supply of machines." The logic of this argument does impress me.

There is another thing wrong perhaps with defense spending and that is, it's so large, it's so complex, and some of the things that are being bought are so sophisticated that it has not been possible for the Congress to be fully informed on a vast number of these transactions. As a consequence, when the Congress learned of or was informed of the bad ones, there was an outcry that it had not been told or that it was surprised. The question is—how much times does Congress have to keep up to date on such things? Certainly, Congress does not have a chance to influence the normal procurement programs such as the buying of shoes, radios, ships, ammunition, and so forth? These programs are carried on under legislative mandates. The transactions are competitive and displayed fully to the public eye; they are audited severely, both during and after the fact, and, we would probably all agree, these transactions are accomplished properly. But Congress—despite the fact that it does not have the time to understand the complexities of major weapons systems acquisition—feels it has not been alert to the need to change some programs once they get under way. I agree with that observation but frankly, I have great difficulty in knowing what the answer should be. As I indicated in my opening statement, it will be our objective to do everything humanly possible to keep you well informed.

WHAT'S RIGHT ABOUT DEFENSE SPENDING TODAY?

First, Mr. Chairman, I will list what's right with defense spending. Following this, I will provide some specifics and explanations of these benefits:

It's done by trained, experienced professionals.

It's free of scandal.

It's conducted in strict accordance with Federal statutes.

It's conducted in a public forum—where there are no secret deals.

It's subject to scrutiny by many divergent elements—from GAO and the Congress—to indignant contractors.

It's subject to professional audit—by GAO, Defense auditors, and by the Congress.

It's highly competitive.

It demands quality products and makes no compromise with slipshod performance.

It provides employment for millions of Americans.

It provides economic benefits to small business and labor surplus firms.

It's fairly priced.

It's not permitting excessive profits.

And it's providing U.S. troops stationed around the world with American-made equipment and supplies—enough and on time.

IT'S DONE BY TRAINED, EXPERIENCED PROFESSIONALS

There are over 20,000 trained, procurement personnel engaged in executing Defense contracts, negotiating prices, and performing the important logistical function of buying the military items necessary to support our forces. This corps of dedicated officers and civilians are generally highly educated and highly trained in their specialty. In Defense procurement training courses, for example, last year, over 8,500 employees completed one or more of the 43 Defense-approved courses. During the last 5 years, over 40,000 attended resident or on-site courses. Thomas D. Morris, the former Assistant Secretary of Defense, said of this corps of procurement specialists, "It is my deep personal conviction that there is no more prudent and skillful job done in any segment of our economy than that which is done by Defense procurement personnel." I completely agree with him.

IT'S FREE OF SCANDAL

It is said that since World War II the United States has spent a trillion dollars for defense. During the past 20 years, the record will show that Defense procurement has been free of scandal. The integrity of the officers and employees who are charged with the responsibility of conducting these programs is above reproach.

Other fields of endeavor have not been similarly blessed—particularly where large sums of money are involved. In far less tempting situations, industrialists have been found guilty of violating Federal statutes. Stockbrokers, bankers, and even politicians have been stained by far less credible performance. We have every reason to be proud of the scandal-free performance of the professional procurement personnel of the Defense Department.

IT'S CONDUCTED IN STRICT ACCORDANCE WITH FEDERAL STATUTES

Congress dictates how procurement shall be conducted through the provisions of the Armed Services Procurement Act. It protects American products under the Buy American Act. It dictates the small business policy that the Defense Department follows in the Small Business Act. It requires the expenditure of these public funds to be severely audited under the Budget and Accounting Act. It limits profits, both in the Armed Services Procurement Act and through the Renegotiation Board. Major equipments—aircraft, missiles, naval vessels, and tracked combat vehicles—must be specifically authorized by the Congress, before consideration is given to requests for appropriation for the procurement of these hardgoods. The Berry amendment adds additional procurement limitations on military buying of such commodities as food, clothing, cotton, wool, and synthetic fabrics.

IT'S CONDUCTED IN A PUBLIC FORUM

Defense procurement transactions are open for public examination. Competitive bids are open publicly. Competitive proposals are solicited from all qualified sources of supply. Each proposed contract over \$10,000—unless exempt by law—is required to be published in the Commerce Business Daily, a newspaper published by the Commerce Department notifying the American public of all proposed Federal purchases. Each Defense contract awarded over \$25,000 is also published by the Defense Department in the Commerce Business Daily. Thus, the Defense procurement programs are conducted in full view of the public. There is full disclosure.

IT'S SUBJECT TO SCRUTINY BY MANY DIVERGENT ELEMENTS

Nine standing congressional committees and numerous subcommittees of the Congress examine defense procurement transactions:

- House and Senate Appropriations Committee;
- House and Senate Armed Services Committees;
- House and Senate Government Operations Committees; and
- Joint Economic Committee.

The GAO employs over 900 auditors who are at the disposal of the congressional committees and individual members to perform additional investigations and audits of individual transactions. Indignant contractors have the right to protest to the Comptroller General and to their representatives in Congress if they are dissatisfied with the conduct of a defense procurement transaction—and this is often done. The willingness of individual taxpayers to complain to their Congressmen of alleged unfairness in the conduct of military buying is reflected in the frequency of letters on this subject. Each inquiry—each investigation—is responded to in full with all of the facts revealed concerning the transaction questioned.

IT'S SUBJECT TO PROFESSIONAL AUDIT

The DCAA employs over 3,000 professional auditors whose job it is to continually review contractors' incurred costs; to review the reasonableness of contractors' priced proposals; and to review, as appropriate, on an after-the-fact basis, the accuracy, currency, and completeness of cost and pricing data previously submitted by contractors—and relied upon by the Government in negotiating contract prices. Over 1,800 Defense auditors are permanently stationed in defense contractors' plants. They review contractor's books and records on a daily basis. Their reports are open for inspection by the GAO and by the Congress. As I mentioned previously, the GAO has a staff of approximately 900 auditors whose full-time job is to review—exclusively on an after-the-fact basis—the activities of the Defense Department. Thus, we may be assured that each transaction is entered into with a full realization that it will be subject to severe audit.

IT'S HIGHLY COMPETITIVE

The Defense Department procurement program is divided into two major segments. The competitive part—this includes follow-on contracts which are awarded to the firms who previously won price or design competition—makes up 60 percent of the Defense procurement program. This includes formally advertised, other price competition, design and technical competition, small business set-asides—where competition is reserved exclusively for small business firms—and small transactions under \$2,500 where the competitive forces of the marketplace assure fair and reasonable prices. The balance of 40 percent of the Defense procurement program is made up of major weapons systems such as the Minuteman, Poseidon missile system, F-4 aircraft, and the tremendously large orders placed with Government-owned and contractor-operated ammunition and shell loading plants. Congress has specifically authorized the negotiation of contracts with one source where the Secretary determines that it is in the national interest to maintain an industrial mobilization base, such as in major weapons acquisitions. Thus, of the 40 percent which is annually awarded on a sole source basis, it is doubtful whether a significant percent of that portion of our major hard goods requirements should ever be purchased on a price competitive basis.

IT DEMANDS QUALITY PRODUCTS

The quality assurance program of the Department of Defense has provided an upgrading—a raising of production standards—fewer defects—for many firms awarded defense contracts. The demanding specifications of our military departments are the most widely used in the world. They serve both the private and the public sectors of our economy. A review of trade journals, technical magazines, and sales promotional data will show that manufacturers proudly announce their products meet military specifications.

How many boys today still have their GI shoes or their parka or coveralls left over from Korea? This is visible evidence of the quality demand of military specifications.

There is a staff of 15,000 quality assurance personnel policing military products being manufactured by American suppliers. It is said that the benefits accruing to the manufacturer—through the demands of the military quality assurance programs—the improved management and purchasing system standards which Defense regulations require—will assure the continued success of many an American firm in the competitive market place. Military specifications have established and maintained rigid standards of quality in numerous consumer areas—particularly in food, clothing, and medical supplies. These standards have a continuing benefit to our national economy.

IT PROVIDES EMPLOYMENT FOR MILLIONS OF AMERICANS

The annual Defense outlays of \$40 billion for supplies and equipment provide work for thousands of industries and businesses. It is estimated that 3 million Americans—5 percent of the Nation's labor force—are employed on military contracts and subcontracts. This money is spent in over 5,000 cities and towns.

IT PROVIDES ECONOMIC BENEFITS TO SMALL BUSINESS AND DISTRESSED LABOR AREAS

During fiscal year 1968, small business firms received a total of \$14.1 billion in military prime and subcontract awards. The Defense Department has a very active small business program that carries out the congressional mandate of the Small Business Act—to aid, counsel, assist, and protect American small business firms. Last fiscal year, \$1.8 billion in contracts were set aside for exclusive competition among small business firms. Big firms were not permitted to bid on this work. This is consistent with the national policy to assist small firms.

In fiscal year 1968, the DOD set aside \$108 million in awards to firms located in economically distressed areas. During the first half of fiscal year 1969, an additional \$113 million was reserved for distressed area firms. The Department is required to award these contracts without the payment of any differential. As a consequence, awards to labor surplus area firms are based upon bid matching procedures wherein the lowest price is established by full and free competition among all American firms in the Nation. These economic and social benefits flow from the military procurement program.

IT'S NOT PERMITTING EXCESSIVE PROFITS

There is a myth about Defense procurement—that it condones excessive profits. This myth is not supported by the underlying facts. An examination of the Renegotiation Board data during the period 1965-68 shows that total excess profits determinations, as a percentage of total renegotiable sales, were less than one-tenth of 1 percent. An additional study of realized profit rates by selected major defense contractors was conducted by the LMI. Its report, covering the 10-year period 1958-67, has been published. The report traces the profitability trends of commercial versus defense business for the period examined. It shows that average defense profits are significantly lower than commercial profits.

It has frequently been said that defense contractors don't lose money. This is not a fact. The published Renegotiation Report for 1968 states, "Of the 4,027 nonagent contractors whose filings were reviewed in fiscal 1968, 3,351, with renegotiable sales of \$35.3 billion, showed a profit of \$1.9 billion, and 676, with renegotiable sales of \$3.5 billion, showed a loss of \$215 million." Even though all of the Vietnam procurements have not yet been reflected in the Renegotiation Board data, the Board reports thus far confirmed that Defense procurement does not permit excessive profits.

IT PROVIDES U.S. TROOPS STATIONED AROUND THE WORLD WITH AMERICAN-MADE EQUIPMENT AND SUPPLIES—ENOUGH AND ON TIME

Despite the hardships and the risks of duty in Vietnam, the defense logistic system is providing our boys with the best possible equipment that can be obtained. General Westmoreland summed up the outstanding logistical support this way:

"Never before in the history of warfare have men created such a responsive logistical system . . . not once have the fighting troops been restricted in their operations against the enemy for want of essential supplies."

Last and by no means least, it has provided the materials necessary to allow this country to maintain its freedom; it has enabled a significant portion of this part of the world to choose their form of government in a democratic manner—without fear of reprisal.

COST OVERRUNS

Mr. MAHON. There has come to be a bad word in our society, and that word or combination of words is "cost overruns." Wives complain to husbands that it is more and more difficult to live within the budget in buying groceries because the prices are escalating. There is an overrun in what is being required for the family as compared to a few months ago and certainly a few years ago. As far as I know, we have always had overruns of sorts in the Defense Establishment and in the Government and in private industry. I would like a little philosophical fill-in as to what overrun means to you, when did this practice begin, and is it altogether bad? If not, why not?

Mr. SHILLITO. I cover some of this in my statement.

Mr. MAHON. I understand, but I want you to cover it now in your own off-the-cuff words.

Mr. SHILLITO. Yes, sir.

Mr. Chairman, to begin with, the word "overrun" has a bad connotation. The arithmetic difference between an estimate today and an actual cost 5 or 6 years from now is invariably tagged as an overrun.

The word "overrun" is frequently misinterpreted, misunderstood, and misused, in the Department of Defense, in congressional hearings, and in industry. The word "overrun" means different things to different people.

(a) *To the contractor.*—An overrun is when his expenditures exceed the contract price (firm fixed price), the contract ceiling price

(fixed price incentive), or the cost or fund limitation specified in the contract (cost plus incentive fee, cost plus fixed fee).

(b) *To the Comptroller.*—An overrun is when the expenditures for a program exceed the appropriations allocated for a specific year.

(c) *To Congress.*—An overrun is when the forecasted expenditures for an entire program exceed the total dollars authorized for the specific program.

(d) *To procurement personnel.*—(1) Cost overrun is a contractual term applying to cost reimbursement type contracts. It occurs when the final contract cost exceeds the "estimated" cost specified in the contract, plus negotiated adjustments; (2) "over target cost" is a term applied to fixed price incentive contracts. It occurs when the final contract cost (price) exceeds the "target price" (target cost plus target profit) specified in the contract; (3) "a contract cost overrun" condition exists when the contractor is unable to complete the work called for by a cost type contract within the estimated (negotiated) amount shown in the contract. For a fixed price incentive contract, the position is that as long as the work statement remains unchanged, cost incurred above targets are considered to be "over target cost" or "cost in excess of target," and not "overruns."

Unfortunately, the word has not been clearly defined so as to make it mutually exclusive and to fit only the circumstances to which it should apply. In this regard, I have taken action to call together a representative from each of the groups within the Department of Defense who have occasion to use this or any similar term. I expect them to reach an agreement on a battery of terms, if need be, which clearly describe the various events which happen. I feel that the Congress and the American people deserve as a minimum to be given a set of terms which have the same meaning no matter who speaks.

I will now address the three basic issues which I believe this committee is most concerned with—the total program growth, the total contract growth, and the difference between the contract price amount and that which we wind up paying. Again, I would emphasize that all of these conditions have been referred to as "cost overrun" and, as such, have a bad connotation.

A total program growth must be visualized within the framework of the time span involved. Any major weapon system will extend over a period of from 5 to 10 years from the time research and development begins and production is completed. At the outset, the people are faced with the facts at hand. These are the knowns and the unknowns that they can predict. Within reasonable limits and depending upon the available facts, a price tag can be hung on this frame. If everything were to go as planned, I would expect that we could expect eventual program outcomes to go about as predicted. But this has not been the case. In this exploding technology we have witnessed since World War II, there is always emerging a greater threat to be met with a greater defense and with greater unknown unknowns and the attendant unknown costs.

At this time, we must decide whether a particular weapon system, already committed with millions of dollars, must now be changed to incorporate what we see to be the current need. The whole concept of program management was born to get on top of this sort of thing. The establishment of the defense research and engineering operations

was a further attempt to control the exploding technology environment, if for no other reason but to explain the cost growth it engendered. It is easy to look back on any of these programs and say "overrun" or to now look forward at existing programs already 2 or 3 years years into development and say "overrun" based upon the forecast of the future.

I do not see within the near future any appreciable alterations in this basic problem causing cost growth from the equipment conception through the most pessimistic forecast, but I do believe that we can do much more to inform Congress about what might happen to a potential weapon system and to diminish any surprises surrounding a substantial cost growth.

In the area of contract growth, I find that many of the problems are the same as I have mentioned previously in connection with program growth. However, there is a significant misunderstanding which occurs as a result of our particular contracting technique. For example, there have been many instances wherein the initial amount of dollars placed on a contract have been compared with the final amount paid under the contract and this difference called "overrun." What actually happened is that the initial contract amount generally is the very minimum amount of dollars required to carry the contract for a given sequence of events and over a given time period. As the contract develops, other known requirements are added in sufficient leadtime to insure their timely delivery. These other elements include such things as spare parts, auxiliary equipment (for example, aeronautical spare ground equipment), training and training aids, and technical data and handbooks. It is quite apparent, it seems to me, that a production contract which will require from 3 to 5 years does not require the operational spare parts to be placed on that contract early in the contract life. The very fiscal year funding procedures imposed by Congress have a great impact on this technique. For example, we may not even ask Congress for the appropriation of specific money for spare parts until as much as 2 years after the start of production. Yet, it would not be prudent for us to enter into a separate contractual document merely to incorporate these spare parts in the contract. I have already taken steps to obtain better visibility on completed contracts which will permit us to explain differences between that which was initially placed on the contract and the eventual contract price amount.

Now, to the final area—the difference between the final payment on a contract as compared to the adjusted targets which reflect all of the changes and all of the added requirements I have previously explained. Interestingly enough, the investigations that I have made have shown that we have not fared too badly in this area. There are many barometers which one could use to gage this fact.

First, a recent study of nearly \$5 billion worth of Air Force contracts has shown a growth from the original estimates of about 48 percent but of this an overrun of 4.1 percent. When you consider that the objectives of the procurement officer are to so set the price that the contractor will have an attainable goal but a difficult goal, you will expect a moderate overrun condition. If there were to be shown an underrun condition, I, then, would be concerned that the targets were being set too high and that cost control was not being maximized.

Certainly, I feel this record is indicative of an attempt by the Department of Defense personnel to control costs to the maximum extent through contract pricing techniques.

Another, is the overall profit of contractors. Although disputed by many for various reasons, the record is fairly clear that many defense contractors earn average profits which are below those realized by the majority of other American business activities.

Mr. Chairman, I hope this will better explain to your committee the very complicated circumstances surrounding the term overrun and that in the future we will have a better basis for discussing the specific circumstances being considered whether it be for a total program, a total contract of the pricing aspects thereof.

Mr. Chairman, pricing is not an exact science. It is something that is exploding technologically like these major weapons systems are. I do believe, however, that we have and should be able to do a much better job than we have done historically in controlling this matter of cost growth. I also believe that you can look back as far as the mid- and late-fifties—we saw the exploding technological environment staring us in the face. A number of people apparently foresaw this kind of problem, because many of the actions that have been taken over this time period would cause us to believe that people saw this exploding technological problem. The whole concept of program management was one of the things developed to get on top of this. The establishment of our defense research and engineering operations was another attempt to get on top of this. These actions were taken with the idea of attempting to control this exploding technological environment and hopefully of getting on top of this cost growth situation.

I think there has been a vectoring in on this but we are far from the point where this vectoring in would be close to satisfactory.

Mr. MAHON. I just wanted to have a little warmup here before you got into your statement. Almost in any sport or contest—it may be hazardous to appear before certain committees—you have a warmup period, so I wanted you to have a warmup period.

FIXED PRICE CONTRACTS

Why don't you settle all of this business of cost overruns by having fixed price contracts, hard and fast, iron-clad, irrevocable, on the C-5A, on the Minuteman II, on any program. Many would ask why don't we just have a fixed price and eliminate cost growth. Will you meet that head on? You can certainly eliminate these overruns. Would it be wise? Would it save or cost money?

Mr. SHILLITO. Mr. Chairman, I sincerely believe that we should, when we can, move into the fixed price contracting environment.

Mr. MAHON. Everyone has been saying that for the 30 years I have been on this committee.

Mr. SHILLITO. I think we have to realize, too, Mr. Chairman, that a number of the programs that have been identified as overrun programs are on a fixed price contract environment in which the changes have brought about the growth from the original estimate to the current actual cost.

Mr. MAHON. That is sort of nebulous, Mr. Secretary. The question is, why not sit down at the table and contract with industry for a fixed

price, binding on both parties, for what you want. I would like a better response.

Mr. SHILLITO. The second point I want to mention involves changes in our economy; this inflation we are concerned with. We cannot accurately estimate prices 4 and 5 and 6 years in the future. The average contractor just would not enter into a major complex system program—one that might involve dollars that could be 8 to 10 times his entire net worth—on a fixed price basis.

Mr. MAHON. The point is you say it is impossible on these major contracts in which you are undertaking to stretch the state of the art to get a fixed price contract.

Mr. SHILLITO. Yes, sir. It is often impossible and often impractical, too.

Mr. MAHON. Explain why it is impractical at this point.

Mr. SHILLITO. You want this for the record?

Mr. MAHON. Yes.

(The information follows:)

USE OF FIRM FIXED PRICE CONTRACTS FOR THE ACQUISITION OF MAJOR WEAPON SYSTEMS

The policy of the Department of Defense has consistently been to effect the maximum utilization of the firm fixed price (FFP) contracting technique whenever appropriate. This means that FFP contracts should be negotiated whenever it makes good sound business sense for both the contractor and the Government to enter into such an agreement.

During the past decade a continuing emphasis has been placed on reducing the number of cost-type contracts and increasing the number of awards made on contracts of a fixed price nature. A byproduct of this shift in contract form has been the increased use of FFP contracts. As a percent of the total dollar awards, such contracts have almost doubled from 27.8 percent in 1958 to 52.7 percent in 1968. While new major weapons programs are not normally launched on a FFP contract, it is apparent that there has been a considerable increase in the number of follow-on procurements which have been placed on this basis.

It must be recognized, however, that most new weapons programs do not meet the criteria which would enable us to place the program on a FFP contract. New programs usually press forward the boundaries of a technology and we are frequently purchasing complex weapons hardware where the items have never been built before in a production configuration, and in some cases the extensive engineering development and detailed design work is just beginning at the time the first contract is awarded. The ability of the contractor or the Government to accurately, or even reasonably, predict costs across the spectrum of time (4 to 8 years) for a total program is simply not sufficient for rational men to use a basis for a binding ironclad contract. In many instances, useful and relative cost experience is minimal. The potential for catastrophic loss or windfall profit requires that somber judgment be exercised by both parties and that a contract-type appropriate to the degree of risk involved be used.

The present ASPR provides a wide range of contract types to assure that the needed flexibility can be incorporated into the bilateral agreement. At one end is the cost-plus-fixed-fee contract where profit rather than price is fixed and the contractor's cost responsibility is minimal. At the other end of the range is the FFP contract under which the parties agree that the contractor assumes full cost responsibility. In between are the various incentive contracts which provide for varying degrees on contractor cost responsibility. Each of these contracts may be specifically tailored to meet the needs dictated by the state of the art, the boundaries of risk and uncertainties, and our ability to precisely define our requirements.

We have attempted, whenever possible, to fully employ the forces of competition in purchasing major weapons but this does not necessarily imply that the procurement vehicle must be a FFP contract, or that an entire program can be placed on such a basis. For example, the widely discussed total package procurement concept used for the C-5 was a pioneering effort to secure the advan-

tages of competition for the total development phase and a significant portion of the production work. This high-risk contract involving literally billions of dollars for the procurement of a new airplane was awarded not on a FFP basis but placed on a more appropriate FPI contract. Even here the cost risk exposure for production quantities beyond the first major segment was recognized to be sufficiently important to warrant the protection granted by the repricing clause. Without debating the merits of the details of the clause as it was written, we believe that most prudent men agree with the logic of restricting the parameters of financial loss or reward under such circumstances.

By placing such a large portion of a weapons program on one contract, we are able to secure prices in a competitive environment and at the same time reduce the administration costs involved in negotiating several individual contracts. This action, however, does tend to accent a condition which is an inherent factor in the development of most new sophisticated weapons programs; that is, the problem of cost growth. In previous programs, the procurement awards were segmented by separate contracts for phases or by fiscal year and the dollars associated with cost growth were not highlighted in one combined total. Additionally, the practice of annually projecting follow-on contract prices from current experience further limits the range of cost fluctuation since the base used for projecting future estimates include current cost growth factors.

In summary, on major new programs we are purchasing weapons which cannot be precisely defined by detailed specifications. We are pressing the state of the art to develop weapons that will be adequate to meet the anticipated threat. We are attempting to buy these requirements in an economical manner and under contract arrangements which will encourage efficient contractor performance. Under these circumstances, we do not believe that the massive cost risk associated with purchasing multibillion weapons systems lends itself to FFP contracting. The potential for windfall profits or the possibility of ruinous losses that could be created by FFP contracting would not, in our opinion, be in the public interest.

Cost growth by whatever cause it is generated can be controlled within reasonable bounds on all types of contracts. It must be recognized that the use of an FFP would eliminate cost growth in only one part—estimating error. It would not abate "cost growth" in other areas such as changes in quantity and the dynamic design evolution.

(Discussion off the record.)

TESTIMONY BEFORE JOINT ECONOMIC COMMITTEE

Mr. MAHON. Mr. Shillito, you appeared before the Joint Economic Committee, I believe.

Mr. SHILLITO. Yes, sir.

Mr. MAHON. If you wish to quote any of the statements which you made before that committee in partial response or amplification of any of your statements here you may feel at liberty to do so for the record.

Mr. SHILLITO. Thank you.

(The information follows:)

MANAGEMENT OF MAJOR WEAPON SYSTEMS ACQUISITION

This paper covers the subject of how DOD manages its weapon systems acquisition. It points out some of the trouble areas we have found in our recent analyses of weapon systems management—areas that we can definitely recognize as needing correction or providing room for improvement—and identifies some of the actions we are taking to attempt to improve our methods.

TECHNICAL MANAGEMENT

Figure 1 shows how DOD manages the acquisition of a typical weapon system on a technical basis. As it may be seen, we have a pipeline with two major channels feeding into it from the left. One channel represents the operational need and the other represents the combined technical input. Requirements for

new weapon systems may be created by intelligence information concerning a new capability on the part of a potential adversary, an unsolvable tactical problem, or from international commitments. There may be a recognition by one or more of the military services or the Joint Chiefs of Staff that there is an operational need which is either currently unfilled or which will be unfilled in the future as the threat changes and as our current weapon systems tend to become obsolete. Coincident with this we are fully aware through communication with industry and with our laboratories that technology is advancing and that there are new techniques and methods of doing things which will permit us to gain greater weapon systems effectiveness—lighter weight/lower volume, sometimes less cost, generally higher reliability and, of course, greater overall combat capability. As we continually examine mission requirements, conduct threat assessments, and evaluate required effectiveness, we are also conducting trade-off studies of the technical inputs and performing gross system optimization and system conceptualization. We are feeding both of these into operational scenarios to see how the going pipeline inputs fit. These two come together in an area which we call concept formulation.

There is considerable iteration in concept formulation, and we are frequently required to stop one approach that we have taken to go back and pick up another approach. Ultimately, we come to the point where we feel we have developed the best combination of operational need and technical input, or, in other words, the visualization of an actual weapon system. In the meantime, of course, we are looking at matters of program schedule and cost. We also, where possible, have been designing and demonstrating hardware. At this time, referring to any given weapon system, the system proponents feel that they have completed concept formulation and are ready to go into contract definition.

Before we allow a system to go into contract definition, we require that six prerequisites have been met. The first prerequisite is that the mission and performance envelopes have been defined; that is, we have a full understanding of what the mission and performance requirements are for the system that we need. We attempt insofar as possible to define the desired system or equipment through performance specifications rather than through detailed specifications so as to give our potential contractors maximum flexibility of approach in meeting our requirements and to permit maximum innovation, while assuring that we get a weapon system which will do the things that we need it to do.

Second, we require that a thorough tradeoff analysis has been made. This tradeoff analysis involves the elements of cost, schedule and performance. In other words, among these three features we endeavor to insure that we get the most effective product when we need it and at the most reasonable cost by looking at all three from the viewpoint of the optimum over-all combination.

Third, we must insure that the best technical approaches have been selected for the new weapon system. This means that we must have done our homework on technical input so that we capitalize on the most advanced state-of-the-art, while at the same time not basing our development on components which have high remaining risk areas.

Fourth, we look for a guarantee that we have ahead of us primarily engineering rather than experimental effort in the remainder of the program and that the technology needed is adequately in hand. This prerequisite is included to avoid the problem of finding, after we have moved into full scale development, that we have problems which require further high risk experimental effort. At this point, we sometimes find ourselves in a situation where we must forge ahead to meet an initial operational capability date and cannot afford the time or expense to return to advanced development.

Fifth, we insure that the cost effectiveness of the proposed item has been determined to be favorable in relation to the cost effectiveness of competing items on a DOD-wide basis.

Sixth and last, we insure, insofar as we can, that the cost and schedule estimates are both credible and acceptable. When we have satisfied all of these prerequisites, we are ready to go into contract definition.

Where concept formulation has frequently taken a matter of years, contract definition normally takes about 1 year. The first phase, or phase A (where we insure that we have qualified bidders) takes approximately 3 months. The second phase, or phase B—the central part of contract definition in which the competing contractors work up proposals—takes about 6 months. The third, or evaluation phase, takes the balance of approximately 3 months. During contract definition the competing contractors carefully define the proposed design, the

engineering plan, schedule, cost, funding, contract provisions, and the proposed management plan. Generally, contract definition is conducted by two or three qualified contractors, although it can be conducted with only one.

The purposes of contract definition are first, to verify that only engineering development remains ahead—to insure that one of the prerequisites mentioned previously for going into contract definition has in fact been accomplished. This is most important. Second, to establish realistic and firm specifications, schedules and costs for development and also, if possible, for production. Third, to attempt to identify all possible risk areas ahead so that plans can be made to accommodate them. And, fourth, to obtain a signed contract, preferably in the presence of competition.

Contract definition as explained in Department of Defense Directive 3200.9 constitutes a conditional decision on the part of the Secretary of Defense to allow a program to proceed into full-scale development. This conditional decision is subject to ratification at the end of contract definition. At that time, the Service sponsoring the particular weapon system looks at the work done by the competing contractors, satisfies itself that the objectives of contract definition have been met, and makes a source selection, provided that the source selection has been delegated to the Service Secretary by the Secretary of Defense. If the Secretary of Defense and, in particular, his Director of Defense Research and Engineering, are convinced that the objectives of contract definition have been fulfilled and if there has been no major change in the requirement for the system (for example, in the threat), the system then proceeds into full-scale development. A full-scale development can take anywhere from a year to 3 or 4 years. During this time a production decision is made; that is, a decision to produce and to deploy the weapon system.

This production decision can be made at any of several different points during full-scale development. Occasionally, a production decision may have been made immediately upon entry into full-scale development. These cases are fairly scarce. They normally occur only when there is a high priority need for the system, there is high confidence that full-scale development can be conducted on schedule, and there are no major risk areas in the way. At the end of full-scale development, production starts. At this time, the basic responsibility for weapons acquisition passes to the Assistant Secretary of Defense for Installations and Logistics.

Installations and Logistics personnel support the D.D.R. & E. staff in such areas as:

- Advanced procurement planning;
- Contractual arrangements;
- Request for proposal preparation;
- Support planning; and,
- Configuration management.

Obviously, DOD's primary interfacing document with industry is a contract. The basic policies governing the entire spectrum of the contracting process are published in the Armed Services procurement regulation (ASPR)—which is primarily an Installations and Logistics responsibility.

Contractually, DOD problems are rather minimal as we move through concept formulation. The kinds of things that are acquired involve engineering studies and management studies. However, at the end of concept formulation various action documents result. Following the approval by the Secretary of Defense of a systems development plan, requests for proposals are issued to industry—covering the contract definition effort. This is our first formal contract on the program with prospective contractors and it leads to competition among the qualified firms with an examination of each competing contractor's approach.

During contract definition, there is always the potential problem that competing contractors may have a tendency to become extremely optimistic, both as regards their technical capabilities and their cost promises. At the same time, there is similar optimism portrayed by the Services involved in order to insure that the program in which they are deeply involved, and feel strongly as to its military need, is launched.

One basic problem we have recognized is a technical contractual problem as we move through development into production. The problem does not appear to be unique to the Defense Department. Practically every major industry has the same kind of problem. It will not go away, but we are convinced that there are alternatives to be pursued which can lessen the problem.

In development, we have long recognized that uncertainties and unknowns must be brought within increasingly narrower bounds for fixed-price incentive and firm fixed-price type contracts to be justified. The use of firm fixed-price development and total package procurement type contracts, following contract definition, when significant development is still required, is at times inconsistent with this principle.

The alternative solutions to this problem have advantages and disadvantages. For example, there would be delays in contract definition until:

The technology is well in hand;

The mission performance envelopes have been defined;

The technical approaches and trade-off analyses have been made in detail;

We know the schedule and cost are both credible.

Alternatively, there are advantages in deferring our production decisions—with admittedly some disadvantages. It is our plan to establish a few development benchmarks in a flexible contractual environment that will insure that such benchmarks are met prior to the release of our major programs to production.

In summary, we believe that there must be more realism in the contracting decisions as related to technical uncertainties. Since World War II, the Defense Department has made many contractual innovations. There have been numerous new techniques used and there have been some advancements. Obviously, there are many problems left that will require our constant attention.

Now, there is another process and a fairly new one which must be understood which overlays everything we have presented so far. That process uses the development concept paper (DCP). This management tool was instituted primarily to insure that a comprehensive look would be taken by the Secretary of Defense and his appropriate principal advisers at a major decision point on an important program; for example, before heavy financial resources were committed to the development of a major program. The officer who has the primary responsibility for the development concept papers in the Department of Defense is the Director of Defense Research and Engineering. It is his responsibility to insure the initiation of a development concept paper at the appropriate time in the life cycle of an important system. Important systems are those which are anticipated to require at least \$25 million of R.D.T. & E., or \$100 million of production funds or both, are high priority or are otherwise important; for example, because of unusual organizational complexity or technological advancement. The most common point at which development concept papers have been introduced has been when a sponsoring military service is ready to go from concept formulation into contract definition.

Before discussing the content of a typical DCP—a word about the broad objectives of this management system. These are to improve decisionmaking and implementation on important development programs by increased assurance that:

The full military and economic consequences and risks of these programs are explored before they are initiated or continued.

Information and recommendations on these programs are prepared collaboratively or coordinated with all interested parties prior to review and decision by the Secretary of Defense.

The premises and essential details of his decisions on these programs are regularly recorded and made known to all those responsible for their implementation.

An opportunity for review is provided to the Secretary of Defense if any of the information or premises on which his decision was based change substantially.

The content of a typical development concept paper contains, first, the issues for decision; that is, the management issue or issues involved.

Next are the program purposes. That is, the threat which the system is designed to meet or exceed. In short, the reason for the system.

Third, alternative solutions. Are there different ways of meeting the threat—of fulfilling the military mission?

Fourth, the DCP covers the proposed cost of the system, the expected effectiveness of the system in meeting the threat, and the planned schedule on which the system would be developed and put into production.

Next, the pros and cons of the system itself: Is the system, in fact, needed? Would it be cheaper, for example, not to have such a system at all, but to take certain recognized losses that we might face in combat if we did not have this system?

Next, the DCP contains a threshold page. This is a most important part because it is the gross management tool which the Secretary of Defense will use thereafter to insure that the system is remaining on track throughout its life. In the case of an aircraft, the threshold sheet would contain figures on technical and operational performance, such as the maximum weight growth which would be allowed before the entire development program is reopened for review by the Office of the Secretary of Defense. Similarly, other thresholds having to do with cost and with schedule are established in this portion of the DCP. For example, if the estimated cost of a system in development is \$100 million, a threshold of say \$110 million might be established. Within these bounds, the sponsoring military service is fully responsible for the entire management of the program. If, however, a system runs over or threatens to run over the \$110 million threshold figure, then the system is fully examined not only by the sponsoring service but by D.D.R. & E. A new development concept paper may be written and a new decision may be made as to which way to go.

Next, the DCP contains a management plan; that is, how does the service plan to manage the program? What is the composition of the System Program Office and so on?

Next, the matter of security: What has to be classified about the development--what can be unclassified? This is very important with respect to industrial considerations.

Next, the DCP covers conditions for revision. As previously indicated, a development concept paper is supposed to be a living document which can be referred to throughout the life of the system and found to be accurate at any time. The development concept paper will normally be updated at the end of contract definition so that it contains more accurate figures on the system, its performance, its schedule, and the cost. Figure 1, illustrating technical management, shows an updated DCP between contract definition and full-scale development and also an updated DCP at the time the production decision is made. This updated DCP is to insure that we go forward into production with a valid and current understanding of the major features of and surrounding the system including the threat which it is intended to meet, the performance parameters, and the cost and schedule features. (So far, no system yet covered by a DCP has reached this point in its life cycle and we are still exploring the best way to use the updating feature of the DCP.)

Next, the DCP contains decision options or alternatives. This means that there is presented for decision by the Secretary of Defense various alternatives from which he may choose, such as to follow the candidate system to go into contract definition. Another alternative might be not to go ahead with contract definition, but either to do further advanced development or simply not to develop this system in favor of developing another one or making another do to meet the mission requirement.

Last, a development concept paper contains the signatures of the Director of Defense Research and Engineering, the sponsoring Service Secretary, certain Assistant Secretaries of Defense (such as Installations and Logistics, Comptroller, Systems Analysis), and then the signature of the Secretary of Defense or the Deputy Secretary indicating his decision.

PROBLEMS

As previously mentioned, there are certain problem areas which we recognize in our weapon systems acquisition—areas which we feel without question are subject to improvement and which we are looking at in order to make a decision as to how best to proceed.

One is the area of source selection and decisionmaking. This involves the whole matter of concept formulation and contract definition—how we narrow down to and finally select one contractor—how and when we make the various decisions relative to development and readiness for production—and how we select the type of contracting which is best fitted to a particular program. We are generally convinced that in the past several years the R. & D. management changes that have been made have been basically in the right direction. Problems were identified in the mid- and late 1950's with respect to improving the disciplines of weapon system management. Since that period, there has been a continuum of improvements in this area. However, contracting methods as well as concept formulation and contract definition policies and regulations may have moved so far that we have deprived ourselves of appropriate flexibility to allow most effective acquisi-

tion to take place. It may well be that a combination of different types of contracts for development and procurement is to the best advantage of the Government.

The matter of covering risks is subject to further analysis, evaluation, and improvement. There have been many criticisms in the past few years by industry that they have been forced by the Government or by the prevailing environment into making overoptimistic estimates of the cost and schedule of the development and production of a system in order to allow themselves any real chance of winning the competition. The Department of Defense does not want industry to be overoptimistic. We want to be informed what industry considers to be an accurate appraisal of the development risks ahead in a program. The Government is prepared to pay a fair price for a system provided it is assured that system is needed and can make an estimate ahead of time of what it is going to cost so it can evaluate its military utility versus its cost. It is not the desire of DOD to put a contractor in a position where he must take an extremely optimistic view of the risks ahead in order to give himself any opportunity to be successful in the competition.

On the other hand, we must know what we may encounter in the way of costs and development problems, and we feel we cannot shift to the other end of the scale where we would do business completely on a cost-plus basis without regard to evaluation of the risks ahead. In this connection, we are convinced at the present time that we would be well advised to attempt to do more design validation and more prototyping rather than to depend as much as we have on paper estimates and paper analyses of what risks lie ahead of us. Most desirably, of course, we would have competitive prototypes for every system or every component that we develop. This practically, as we all recognize, is not possible. It is far too expensive, for example, and too time consuming to build two complete competitive aircraft weapon systems and to fly them one against the other to decide which one we want to buy. It is feasible, however, to conduct prototype competitions of certain major subsystems, such as engines or avionics or radars or even aircraft missile systems. We feel that we may have been making our decisions to produce too early in the life of a system. We may be well advised in many cases to attempt to carry competition farther along than we have until we are assured that more of the risks involving unknowns are behind us—that we, indeed, have purely engineering ahead rather than experimental development and that contractors can make more accurate estimates of what the remaining development and the production of a system will entail. All these things are involved in the source selection and decisionmaking. We are looking at them carefully and expect to make changes indicated by our studies as soon as we have convinced ourselves that we are moving in the right direction.

Next, among the major problem areas is the matter of documentation. This takes two forms: (1) technical documentation, which the contractor is required to provide to the Government in responding to a request for proposal; and (2) documentation pertaining to the management of the program he must conduct if he wins the contract for the development (not only the type of management but the depth of management detail called for).

There is a growing feeling with respect to the former that not only has the Government been asking for too much depth of detail in the technical documentation, but the contractors frequently have overdone the technical documentation on their own initiative in order to convince the Government that their depth of knowledge of the system is such that they should be given the contract. We are going to try to stem this tendency toward excess technical documentation.

Another major problem area is the program management itself. We are not fully satisfied at the present time with our program management policies and organization. We feel that we probably need better training for our program managers, more extensive training, a longer tenure, by the PM's in their jobs as well as longer tenure by other key people in the SPO's or System Program Offices. Further, a program manager frequently does not have authority to match his responsibility, and in some cases he is not fully certain of what his responsibilities are. He frequently is subject in his work to such a wealth of directives that he cannot possibly be fully familiar and comply with them all. What we need are high quality, well-trained program managers, with good teams working for them, in a framework of management which permits them to carry out their jobs with a minimum of impediments and extraneous requirements. One of our major plans in this connection is to take a hard look at the composition and the curriculum of the weapon systems management course, at the Defense Weapon Systems Management Center. We feel that there is a possibility that the course should be made longer and that perhaps we should turn out program managers with a master's degree in program management.

In summary, the thrust of our ongoing efforts in the field of Defense R. & D. management is this: The management of Defense R. & D. is a titanic task involving the disposition of billions of dollars a year covering many programs of a widely divergent nature. It is impossible to find one single policy or method of management which best fits all.

We have tried many methods to get the most defense per dollar expended. We have made some improvements in the past but recognize we may have overreacted in our handling of some problems. We want to correct and improve the management of our Defense weapons system acquisition and do it as fast as we can, which means when we are sure we have identified a problem and developed a solution which will move us in the right direction.

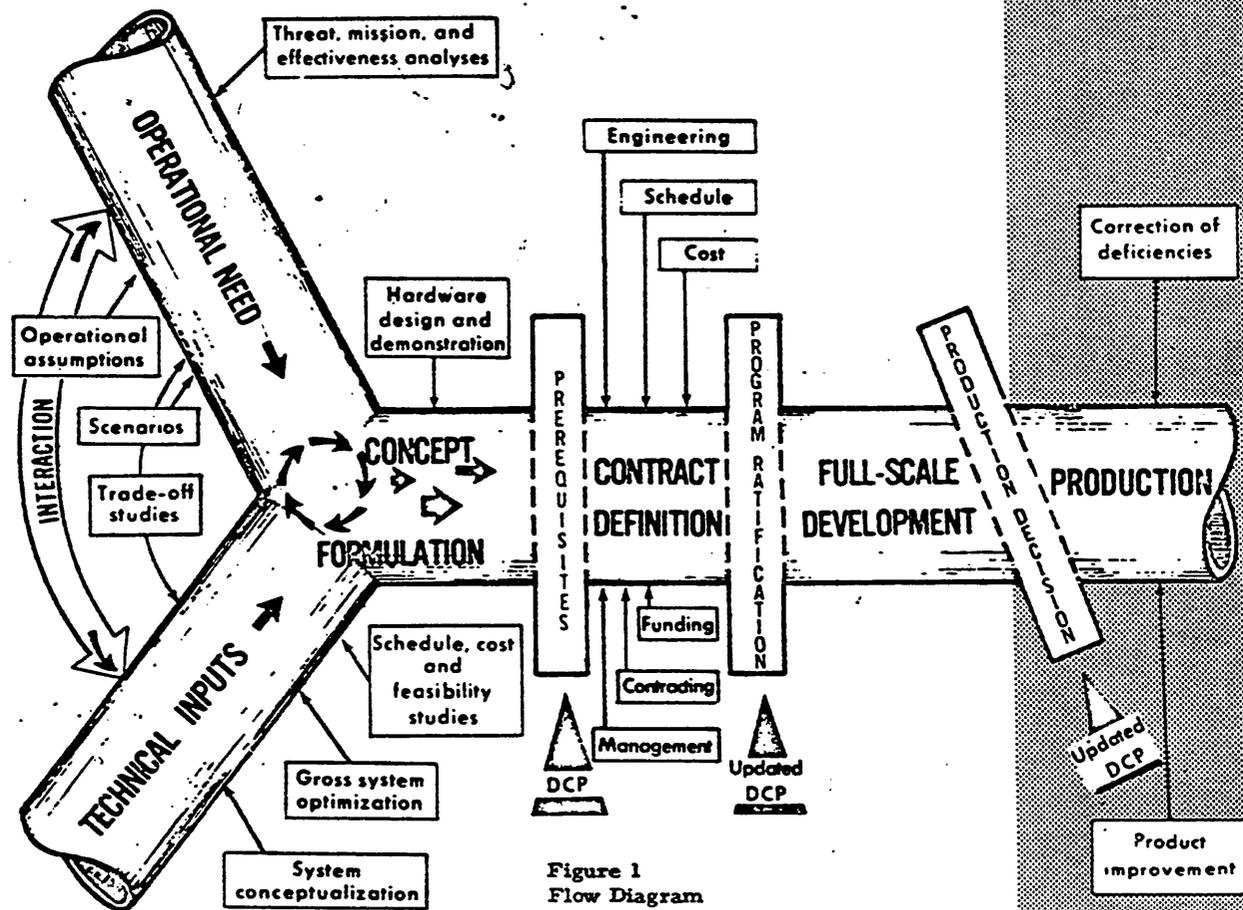


Figure 1
Flow Diagram

STATEMENT OF ASSISTANT SECRETARY FOR INSTALLATION AND LOGISTICS

Mr. MAHON. How do you propose to proceed, Mr. Shillito?

Mr. SHILLITO. I will follow your dictates, Mr. Chairman. I can read the statement.

Mr. MAHON. I think you ought to read it.

Mr. SHILLITO. Yes, sir.

Mr. Chairman and members of the committee, as you know, I am comparatively new in my present job. I, therefore, am not prepared to discuss with you what has been accomplished. I would like to discuss a number of the programs that have been underway for some time, some of the problems that confront us, and some of the programs that we are initiating. We sincerely solicit your continued guidance. We are prepared to respond promptly in those areas where you believe our management should be strengthened.

It will be our continuing intent to insure that this committee understands what we are planning, and our progress as related to these plans. Hopefully, we will be able to improve our communications in a fashion that will allow us to start to bridge what sometimes appears to be a rather sizable gap between the Pentagon and Capitol Hill. If humanly possible, I would like to hope that the closing of this gap will be such that Congress is aware of both our plans and problems prior to finding out about them in the newspapers.

Secretary Laird has made it quite clear that one of our major responsibilities is to keep you as fully informed as is humanly possible. If we fail in this objective from time to time—let me assure you, it will never be intentional.

We are reviewing our entire logistics function and its performance. We make no spectacular predictions for improvement. We offer no panacea. We do intend, however, to do our very best to develop ways to improve performance and effectiveness of our logistics functions, and to do that job with the least possible expenditure of public funds.

As I am sure this committee is aware, my predecessor, Secretary Morris, did an outstanding job in attacking a significant portion of our Defense logistic problems. The heritage which he has passed on to us has been of great assistance in allowing us to develop many of, what we believe, should be our future major objectives. After careful consideration on the part of the Service Secretaries and myself, we have defined a number of areas warranting our personal attention. I would like to briefly touch on eight of these to serve as examples of areas to which we are giving priority.

1. *Weapons systems acquisition.*—As I am sure you appreciate, new major weapons systems acquisition responsibility is primarily that of research and engineering—the technical environment plays the major role in dictating the contractual environment. We have had some severe problems in developing compatible contractual/technical relationships. The greatest single problem area in the weapon systems acquisition business is during that period of transition from development to production. This is where most of our problems arise. This will receive a significant amount of attention on the part of all of us. We will be concerned with insuring the development and production of the desired hardware while, at the same time, motivating contractors in the most effective possible manner.

2. *Logistics performance measurement and evaluation system.*—For the past several years the Department of Defense has had a most effective cost control program. This we intend to continue and, in fact, plan to give this program additional stimulation.

In parallel with this program, Deputy Secretary of Defense David Packard on March 24 directed the establishment of a logistics performance measurement and evaluation system. It was his idea that—and I quote—“we should start immediately to develop an ability to establish realistic objectives, evaluate results, and take prompt corrective action when necessary.” He contemplated that the logistics area under this system “would change with priority” and that the system’s surveillance of a selected area would cease when results showed that performance was satisfactory. Our target is July 1, 1969, for a fully operational logistics performance measurement and evaluation system. Initially, the system will cover from 20 to 30 areas within the logistics spectrum. Our objectives in general are to enhance the logistic efficiency and effectiveness, and combat readiness of our Armed Forces, and specifically to—

Tighten supply management.

Improve procurement practices.

Raise the quality of maintenance, support facilities, and services.

We will be establishing goals and criteria, and measure performance in carefully selected logistics areas. This will include such things as status of letter contracts, item entry control, back-order reduction, undefinitized change orders, and maintenance man-hours per flying hour. A Defense directive dealing with this program was signed on May 29, 1969. This program has been discussed in some detail with the Bureau of the Budget which looked favorably on this technique. We are quite confident that this program will have significant payoffs. This program is designed to attempt to stay on top of those areas that either are problem areas or could be problem areas.

3. *Logistics manpower.*—A review of our logistics manpower was started in 1968 and was completed in February of this year. It is apparent from the report that we need to give additional attention to our total Defense logistics manpower and to improve the professional role and skills of the personnel within this logistics framework. This will encompass such things as data relative to the composition of the work force, military career programs, military-civilian mix, recruitment and retention.

4. *Shipbuilding conversion and overhaul programs.*—Responsibilities in the shipbuilding conversion and overhaul programs area are primarily that of the Navy. Due to the importance with which we look at this particular area, however, it is the intent of my office to assist the Navy in every way possible in doing an effective job of modernizing the fleet. This will include the development of realistic long-range plans, the establishment of sound cost estimating techniques, improving workload planning, scheduling, and effective acquisition procedures.

5. *Maintenance management.*—Our objective in maintenance management is to improve through more intensive review and analysis our maintenance costs and performance. This will tie directly to an assessment of the impact of maintenance on equipment readiness. All the techniques for accomplishing these objectives have not been estab-

lished. We estimate this area involves approximately \$18 billion of our total Defense budget, hence we feel quite strongly that improved visibility is essential.

6. *Simplifying contracting procedures.*—The simplification of contract procedures is a much more complex problem than would appear to be the case. Its solution involves many segments of Defense as well as longstanding regulations and laws. We are concerned that our contracting procedure may have become overly complex, and consequently too costly in terms of time and manpower resources that are now consumed. I am uncertain as to what to expect as a result of the attention which we plan to give this area. We will be conducting intensive study efforts, however, that we hope can lead to significant improvements, with well thought-out changes in our contracting procedures.

7. *Encroachment.*—Historic assumptions relative to the virtually unlimited availability of land, water, and air, in order to allow the Department of Defense to conduct its responsibilities, are no longer valid. The Defense Department has over 26 million acres of land in the United States. This has decreased from 32 million since 1957. We operate 555 major installations in the United States. Well over half of these major installations have had some form of encroachment problem in the past year. These problems are caused by urbanization, air space conflicts, highway problems, need for park and recreational areas, municipality needs for tax base purposes, etc. We are most concerned as to what this portends for the future.

We have initiated a major study of all of our military installations in southern California, and a similar study as regards our aviation installations in the Northeastern section of the United States. Similar study efforts will be undertaken in other regions in the future.

We are inclined to anticipate that these studies may result in recommendations involving relocation. New legislation, of course, would be necessary to authorize for land exchange, annexation, the authority to use sale proceeds to finance acquisition of other locations.

8. *Policy implementation.*—A thorough review of our policies leads us to the conclusion that, on balance, Defense policies are quite good and, in fact, since the midfifties, have continuously improved. We are convinced, however, that we do have a severe and continuing problem as regards the satisfactory implementation of our policies. Consequently, a significant amount of attention will be given to manpower, implementation techniques, and training as related to policy implementation.

As I mentioned initially, these are just eight of a number of objectives with which we are concerned. It does give you some idea as to the things with which we intend to concern ourselves. We will be reporting regularly to Secretaries Laird and Packard as we move forward in each of these areas and will certainly keep this committee informed of significant developments—whether they be accomplishments or problems.

REVIEW OF CURRENT PROBLEMS

I would like now to touch on a few of the major problem areas which have been given a significant amount of both congressional and public attention. We realize that this attention is necessary and that we

will never be immune from questioning or criticism. The best way I know of getting a better understanding and perhaps solving some of the problem areas currently being aired is to freely discuss them.

Three particular subject areas have received the vast majority of recent press coverage. These are: cost overruns, the military-industrial complex, and defense industry profits.

COST OVERRUNS

Cost overruns seem to be the focal point of contemporary criticism of Defense procurement. I would like to attempt to bring this matter into perspective. The Department of Defense has about 11 million procurement transactions annually. Having been deeply involved for many years in both Defense and industry and having been exposed to this process in many of the major companies in this country, it is my considered opinion that the professional people in our Defense procurement operations do at least as skillful and prudent a job as the professionals in any other large segment of our economy.

There are virtually no problems with the vast majority of the individual procurements that are placed annually. There are severe problems, however, with a fraction of the total procurements placed, and particularly those awards for major weapons systems, involving both development and production. These are the complex acquisitions—the programs that are now getting the press coverage.

Before going further into the problem, I would like to first attempt to define overruns. In fact, I would like not to refer to this problem as overruns, but throughout the balance of our discussion, refer to it as "cost growth" in that I believe a very small percentage of the total cost growth can be defined as overruns.

Cost growth generally falls into three major groupings. The first involves configuration changes agreed to by ourselves and the contractor. Generally, these changes are for the purpose of improving the performance of the weapon or system that we are buying. The second involves changes required by the contractor to meet the specifications which we have imposed on him. These specifications are generally performance specifications. The contractor and the Government find it necessary, as a result of unforeseen developmental problems, to make changes. These changes may result from specification deficiencies or initial overoptimism on the part of the contractor or the Department of Defense. The third category involves instances in which the contractor or the Government makes a poor estimate of trends in the labor, material, or overhead required. In other words, it just costs the contractor more to do the job than had been anticipated.

To fully appreciate the complexity of this estimating and cost growth environment, we must realize that we are frequently talking about programs involving as many as 5 to 7 years from the point of initial development until we have moved into production and operation. We are attempting to estimate the cost of a program involving thousands of complex bits and pieces, and hundreds of subsystems evolving from multiple technologies in an environment that is just not technologically dynamic, but in some areas is virtually exploding.

In every technological discipline, we find that graphically, with technology reflected vertically and time horizontally, there has been a

very recent vertical growth when relating such discipline to a time span involving several hundreds years. In addition, we now find ourselves faced with a situation in which we have a cross-fertilization of technologies or disciplines. Not too many years ago, a man was a mechanical engineer, an electrical engineer, a chemist, a photographer, or what have you. Today, we use as a part of our normal conversation such terms as electrochemical, biochemical, electromechanical, econometrics, photo recon, and so forth. These cross-fertilizations have brought about a further explosion. This is the environment in which we are attempting to pinpoint the costs of a complex system, involving a myriad of disciplines, that must still be developed, has one excellent possibility of some obsolescence, and which won't be delivered for several years.

Our society—somewhere, somehow—has come to believe that price estimating in this environment should be an exact science. Nothing could be further from correct. This problem, by the way, is common to commercial companies in virtually every environment. It is also highlighted many times throughout history when we were not faced with the technological explosion problems of today. It will not go away. Our job as managers is to attempt to lessen the impact of this problem and to manage it better. This we intend to do. There will be changes in the months and years to come to allow us to improve our management in these areas.

We have made it clear to industry that we fully intend in the future to do a more complete job in the development of these major programs prior to the release of such programs to production. Many of us have been inclined to feel for some time that we have had a tendency to move into production too early. We would like to hope that we can end up with a few sound developmental milestones which must be met prior to production releases and that production releases will consequently be tied to developmental accomplishment rather than to the calendar.

We are establishing a Major Weapons Systems Review Council composed of the engineering, financial, systems analysis, and logistics secretaries who will be responsible for critically reviewing each major program to insure that these programs are ready for production release. We will probably do more in the way of competitive development. We must realize that even though sometimes this may appear costly, we are talking about a comparatively small portion of the total life cycle system cost consumed in development. Frequently, it will be more desirable to spend additional dollars during development in the interest of spending less money during production.

We also intend to review completed contracts involving both development and production in the interest of developing cost growth information. This information will be broken into causes for such growth, by type contract. While the information collected to date is comparatively limited, we are convinced that with time, this data will allow us to better understand our problem and lead to improvements.

MILITARY-INDUSTRIAL COMPLEX

The term, "Military-industrial complex," came into prominence as a result of President Eisenhower's farewell address on January 17, 1961. He made it very clear that a vital element in keeping the peace is our

Military Establishment; that "our arms must be mighty, ready for instant action, so that no potential aggressor may be tempted to risk his own destruction." He stated very clearly that, "we have been compelled to create a permanent armaments industry of vast proportions." He further stated that, "we recognize the imperative need for this development." He warned us that, "we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex."

General Eisenhower's address was outstanding. We are heartily in accord with its position. It has led a number of people, however, to use this one portion of the speech to serve their parochial conclusions and to cause unwarranted concern on the part of many Americans who have not taken the opportunity to assess our total military, industrial, political, educational environment. The military-industrial complex has been blamed for unnecessary expenditures for arms. It has been accused of wastefulness in an environment requiring the acquisition of major weapon systems during a time of technological explosion, when estimating becomes a horrendous and sometimes impossible task, as I mentioned earlier.

HIRING OF RETIRED MILITARY PERSONNEL

Contractors have been accused of a very recent growth in the hiring of retired military. It has been properly stated that the numbers of retired captains and colonels, and above, presently working for defense industry has grown from 767 in 1959 to 2,122 in 1968, the conclusion being that, in the past few years, things have gotten completely out of control in this area; in fact, that this is a rather insidious, conspiratorial relationship. These accusations have had a most adverse effect on the morale of our military forces at a time when we can ill-afford such a condition to exist. I am also quite sure that this is having a very negative impact on companies that we need. Persons making these accusations have elected to ignore many of the facts, some of which I attempted to make clear in my letter of April 10, 1969 to the chairman of the Subcommittee on Economy in Government, Joint Economic Committee. A copy of this letter will be supplied for the record. It covers the growth from 1959 to 1968. It covers the increased base in our military retired captains and colonels which has grown staggeringly from 1959 to 1969.

(The letter follows:)

ASSISTANT SECRETARY OF DEFENSE,
Washington, D.C., April 10, 1969.

HON. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government, Joint Economic Committee, U.S. Senate, Washington, D.C.

DEAR SENATOR PROXMIRE: In further response to your letter of January 20, 1969 concerning the employment of retired military officers by defense contractors, attached are letters from the final six of the 100 parent companies.

With all contractor replies now in, I would like to make some observations concerning the employment of approximately 2,100 senior retired military officers by the 100 top defense contractors. Their employment, as is the case for all of our approximately 700,000 retired military personnel, is covered by regulations and laws, which are designed to prevent conflicts of interest. In my view, our Nation has great need today for the skills and professional expertise of our retired military personnel, both commissioned and noncommissioned. They are serving, after honorable careers in uniform, in positions of responsibility throughout our society. In this regard, I am mindful of the thousands of retired people who are

in teaching and health and welfare positions, as well as other areas of public service. I am also aware of the contribution which retired people are making to industry.

There are several statutes, as you know, that limit the activities of both civilians and officers after leaving Federal service, as well as while in the service. Those covering retired military personnel are more restrictive than those applicable to civilians. The adequacy of these statutes was the subject of congressional consideration in 1962 at the time of enactment of Public Laws 87-649, 87-778, and 87-849.

These statutes are referenced, together with DOD policies and procedures implementing them, in DOD directive 5500.7, a copy of which is attached. We feel these controls are sound and are working. I also feel there should be greater public knowledge of the many checks and balances which exist—government-wide—in the acquisition of major weapons systems. Decisions governing major programs are made at high levels with participation by many individuals both military and civilian within the Defense Establishment and are subjected to congressional reviews and scrutiny by the Comptroller General. The best weapon to guard against the possibility of impropriety or lack of objectivity is the continued application of the system of checks and balances provided by established legislative and executive processes of our Government and in continued surveillance of our program and acquisition processes by Defense Department managers, by the Congress, and by others.

In my letter to you of February 26, 1969, I stated that additional information was being developed. All of our compilations are not yet completed. However, I believe the factors involved in current higher employment of retired officers by the top 100 defense contractors, as compared to 1959, can better be assessed by examining other related data now available that bears on the causes and provides a degree of perspective. For example:

1. Increase in number of retired officers

In 1959, there were approximately 18,600 retired officers with the rank of colonel or Navy captain, or higher, receiving retirement pay. The total number of these officers employed then by the top 100 contractors, as reported in letters from those firms, was about 767, or about 4.1 percent of the total. In 1968 there were about 38,000 retired officers in the same category. Of these, based on letters recently received from the top 100 contractors, about 2,122 are currently employed by them or about 5.6 percent of the total. This apparent increase must be assessed in context with the increased numbers of business entities that now employ them, as well as other factors discussed below.

2. Mergers and acquisitions

It will be noted from the published lists of the top 100 firms for fiscal year 1958 and fiscal year 1968 there have been many mergers and acquisitions that in some cases compress the current total retired officer hirings into fewer firms, compared with 1959. Examples are McDonnell-Douglas and Ling-Temco-Vought. Other examples include, North American's merger with Rockwell-Standard; Litton Industries' acquisition of Ingalls Shipbuilding; Ford's acquisition of Philco, and many others. Also, there are about 131 more corporate or company entities listed under the 100 parent firms as covered in the fiscal year 1968 list than in the fiscal year 1958 list. Additionally, many acquisitions and consolidations may not be apparent from the firm names or from entities described in the fiscal year 1968 published list of 100 firms and affiliates. This may occur when the acquired firm is absorbed within the acquiring corporation as an operating element and its Government contracts and other sales commitments are executed in the name of the acquiring corporation, with no change in the corporate identity. These facts would tend to distort the comparison of present employment totals with the 1959 totals.

3. Increase in business activity

I believe it is worth noting that for the 16 firms specifically mentioned in your recent statement, total dollar sales (defense and nondefense) increased from about \$23.9 billion in calendar year 1958 to about \$47.3 in calendar year 1968, almost double. This is due in part to the mergers and acquisitions mentioned above. In the same period, total employment of individuals by these firms increased from about 1,084,000 persons to about 1,608,000 persons, an increase of almost 50 percent. Although comparable employment figures for fiscal year 1959 have not been compiled for the most of the top 100 firms, it might be of interest to

note that 89 of the 100 firms, which currently employ 2,078 of the listed retired officers, now employ a total of about 6,537,753 persons. This comes out to about 0.0003 percent of the total employees.

4. Positions held by retired officers

It is clear from the recent contractor's letters that a large number of the listed officers are either employed in separate corporate entities or divisions that are entirely commercial in nature, or their position descriptions indicate nondefense activity. For example, the reply from American Telephone & Telegraph Co. shows that of the nine retired officers listed, one is with the New York Telephone Co., two are with the Pacific Telephone & Telegraph Co., one with the Ohio Bell Telephone Co., and one is a methods specialist in restaurant management. There is a large number of positions that cannot, by their description alone, be categorized clearly as defense or nondefense in nature. However, of the operational entities below the parent corporate level—under which many of the larger firms have grouped retired officer employees—very few are engaged exclusively—100 percent—in defense work.

5. The military retirement system

Military career officers generally retire at much younger age than civilian employees both in Government and in industry. With many productive years remaining and frequently with heavy financial responsibilities, such as in providing education for their children through the college level, the vast majority of these officers find it desirable or an economic necessity to seek employment after retirement. While many are specially qualified to continue their Federal service in a civilian status, there are statutory restraints. In seeking private employment, they are frequently faced with age bars and "rigid promotion from within" policies of many firms. Thus, they are motivated to seek those types of employment for which they are particularly qualified and where there is a need for their expertise. One of these areas, of course, is the performance of functions incident to research, development, and production of military hardware.

6. Fewer officers of highest ranks now employed

While a few firms did not identify the specific ranks of the listed individuals either in the 1959 or the recent survey, it appears that approximately 249 retired generals and admirals were employed in 1959 by the top 100 defense contractors (fiscal year 1958 listing). The recent survey discloses that the total number of retired officers in these ranks employed by the top 100 contractors (fiscal year 1968 listing) dropped to 183 in 1969, notwithstanding that the number of retired officers in these ranks increased from about 2,580 in 1959 to about 3,485 in 1968.

7. Inaccuracies in data

In compiling data from Department of Defense records on dates of retirement and dates hired by contractors (mentioned in my February 26 letter to you), we are finding errors. Some contractors have incorrectly listed individuals as retired officers (drawing retirement pay). Evidence of this is contained in the attached letter of March 25, 1969, from Honeywell, Inc. Honeywell is rechecking its officer listings and expects that instead of 26 officers there may be no more than five. We have noted other errors that are apparent on close examination of the listings, such as inclusion of lower ranking officers. These adjustments will reduce the 1960 employment totals. You will be informed of any corrections based on our review of service records.

In summary, this Department is fully aware of the concern expressed in President Eisenhower's farewell address to the Nation in January 1961. He stated then that "we can no longer risk emergency improvisation of national defense; we have been compelled to create a permanent armaments industry of vast proportions," and that "we recognize the imperative need for this development." At the same time, he said, * * * "we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex." In my view, the Department of Defense is fulfilling its share of responsibility to the nation that we all bear in this effort. I feel it is important, in this regard, that the Congress and the public be aware of the factors I have outlined that put in perspective the increased employment of retired officers by the top 100 contractors. I am concerned that without benefit of this additional information, some may gain the impression that there is an abnormal upsurge or serious disproportionate growth in employment of retired officers in this segment of our national economy. In my view, the facts do not warrant those conclusions. We

respectfully request that this letter be placed in the Congressional Record in amplification of the information published on March 24, 1969.

As indicated in my earlier letter, additional information bearing on these questions will be furnished when compiled.

Sincerely,

BARRY J. SHILLITO,
Assistant Secretary of Defense,
(Installation and Logistics)

Mr. SHILLITO. In 1959 we had retired 19,219. In 1968, we have retired almost 38,000. We have an increase in the business activities of the top 100 companies that we are talking about that is quite consequential. We have a situation where roughly their total sales have roughly doubled, where their employees have roughly doubled. We are faced with a situation where approximately 0.0003 percent of their total employees are retired captains, colonels, and above. It is also interesting to note that generals and admirals who retired from 1959 to 1969 have decreased in their employment by actual count as far as the top 100 contractors, falling from 249 to 183.

TOP 100 DEFENSE CONTRACTORS

Mr. MAHON. I would like to ask the staff, have we placed in the record the names of the top 100 contractors and the type of information which we normally have?

Mr. MICHAEL. No, sir.

Mr. MAHON. We ought to have it in our hearings. Maybe this would be a good place to insert it in the hearings. Will you do that, sir?

Mr. SHILLITO. Yes, sir.

(The information follows:)

ONE HUNDRED COMPANIES AND THEIR SUBSIDIARY CORPORATIONS LISTED ACCORDING TO NET VALUE OF MILITARY PRIME CONTRACT AWARDS, FISCAL YEAR 1968

The 100 companies, which, together with their subsidiaries, were awarded the largest dollar volume of military prime contracts of \$10,000 or more in fiscal year 1968, accounted for \$26.2 billion, or 1.9 percent more than in fiscal year 1967. The total awarded to all U.S. companies was \$38.8 billion, which was 1 percent less than in fiscal year 1967. Although the total volume of awards was almost the same in both fiscal years, there were sizable increases in the procurement of ammunition, missiles and space equipment, petroleum, and transportation services, and decreases in clothing and textiles, construction, and miscellaneous commercial-type items. In general, the industries affected by the increased Defense procurement are more highly concentrated than those affected by decreased procurement. It is principally for this reason that the top 100 companies received 1.9 percent more of the fiscal year 1968 than of the fiscal year 1967 total, or 67.4 percent, compared with 65.5 percent. A contributing, but probably less important factor in the increased percentage awarded to the top 100 companies, is the process of acquisition, merger, and consolidation that has been prevalent in U.S. industry. Some of the important changes are discussed on the next page.

The table below shows that the first five companies received 20.6 percent of the total received by all U.S. companies in fiscal year 1968. This was a slightly lower percentage than was obtained in fiscal year 1967. However, the percentage for the first 25 companies aggregated 45.6 percent or 1.1 percent more in fiscal year 1968 than in fiscal year 1967. The largest company in fiscal year 1968 obtained \$2,239 million compared with \$2,125 million for the largest in fiscal year 1967. To get on the list in fiscal year 1968 required \$50 million in awards, against \$46 million in fiscal year 1967.

PERCENT OF U.S. TOTAL

Companies	Fiscal year 1965	Fiscal year 1966	Fiscal year 1967	Fiscal year 1968
1st.....	7.0	4.6	5.4	5.8
2d.....	4.9	3.5	4.7	4.8
3d.....	3.5	3.4	4.6	3.8
4th.....	3.4	3.4	3.3	3.4
5th.....	3.1	2.7	2.8	2.8
Total, 1 to 5.....	22.0	17.6	20.8	20.6
6 to 10.....	10.2	9.0	8.8	9.3
11 to 25.....	16.0	16.4	14.9	15.7
Total, 1 to 25.....	48.2	43.0	44.5	45.6
26 to 50.....	13.0	12.1	11.6	11.5
51 to 75.....	5.2	5.4	6.1	6.6
76 to 100.....	2.5	3.3	3.3	3.7
Total, 1 to 100.....	68.9	63.8	65.5	67.4

The fiscal year 1968 list of the top 100 companies contains 16 companies which did not appear on the list for fiscal year 1967. Of these, four appear between positions 51 and 75 and the remaining 12 between positions 76 and 100.

Of the 84 companies appearing in both fiscal year 1967 and fiscal year 1968, 43 bettered their position, 37 were in a less favorable position and four showed no change in position. The greatest positive change occurred for Texas Instruments, Inc., which went from 64th place last year to 39th place this year. Other companies with major position changes were: Pan American World Airways, Inc., from 55th to 32d; Litton Industries, Inc., from 36th to 14th; Olin Mathieson Chemical Corp., from 42d to 21st and International Harvester Co. which dropped from 71st place last year to 98th place on the list this year.

Companies listed in fiscal year 1967 but not in fiscal year 1968

Aerodex, Inc.	Airlift International, Inc.
Atlas Chemical Industries, Inc.	Bethlehem Steel Corp.
Automatic Sprinkler Corp of America	Cities Service Co.
City Investing Co.	Dillingham Overseas Corp. & H. B.
Colt Industries, Inc.	Zachary Co. (JV)
Control Data Corp.	Dow Chemical Co.
Harris-Intertype Corp.	Firestone Tire & Rubber Co.
Hazeltine Corp.	Flying Tiger Lines, Inc.
Lykes Corp.	Maxson Electronics Corp.
McLean Industries, Inc.	Morrison-Knudsen Co.
National Presto Industries, Inc.	Northwest Airlines, Inc.
Seatrail Lines, Inc.	Ogden Corp.
States Marine Lines, Inc.	Stevens (J. P.) & Co., Inc.
United States Steel Corp.	Systems Development Corp. (N)
Vitro Corp. of America	Tumpane Co., Inc.
World Airways, Inc.	Union Carbide Corp.
	Westinghouse Air Brake Co.

In addition to this turnover the following changes affecting companies on the fiscal year 1967 list were noted: North American Aviation, Inc., has become North American Rockwell Corp., the result of a merger with Rockwell-Standard Corp.; Atlantic Research Corp. was merged into Susquehanna Corp., a uranium mining and processing company and a building products supplier; the name of the Signal Oil & Gas Co. was changed to Signal Companies, Inc.; however, the Signal Companies oil and gas business will continue to be conducted under the Signal Oil & Gas Co. name.

Major changes affecting companies on the list for fiscal year 1968 are: the acquisition of Hayes Holding Co.—Formerly Hayes International Corp.—and American Electric Co. by the City Investing Co., a diversified manufacturing and investing firm; the acquisition of Mack Trucks, Inc., by the Signal Companies; the acquisition of Braniff Airways, Inc., by Ling Temco Vought, Inc.; the merger of Memcor, Inc., into LTV Electrosystems, a subsidiary of Ling Temco Vought, Inc.; the acquisition of PRD Electronics, Inc., and Radiation, Inc., by the Harris-Inter-type Corp., and the merger of the Amphenol Corp., with Bunker Ramo Corp. which is controlled by the Martin Marietta Corp.

Although the contract work of many companies on the list involves more than one procurement category, each company has been assigned in the table below to the procurement category that accounts for its largest dollar volume of awards. On this basis "electronics" companies decreased from 19 in fiscal year 1967 to 14 in fiscal year 1968, while "missile" companies increased from seven to 12. For the first time four companies engaged principally in ocean transportation services made the list. These were the Lykes Corp., McLean Industries, Inc., States Marine Lines, Inc., and Seatrains Lines, Inc.

Procurement category	Number of companies		
	Fiscal year 1967	Fiscal year 1968	Change
Aircraft.....	20	22	+2
Missiles.....	7	12	+5
Ships.....	4	2	-2
Tank, automotive.....	7	7	-----
Weapons.....	1	2	+1
Ammunition.....	19	22	+3
Electronics.....	19	14	-5
Services.....	10	12	+2
Construction.....	2	1	-1
Petroleum.....	7	6	-1
Textiles and clothing.....	1	0	-1
Building supplies.....	1	0	-1
All other supplies and equipment.....	2	0	-2

As indicated above the number of companies assigned to "Missiles" increased by five over last year; however, four of the five newly assigned companies in the missile category made the list last year under other categories. Of the 19 companies assigned to "Electronics" in fiscal year 1967, 11 were retained in this category in fiscal year 1968, five were assigned to other categories and three did not receive sufficient awards to make the list.

Three nonprofit contractors—see index—made the list for fiscal year 1968 dropping by one from last year. These nonprofit contractors, for the most part provide research, development, and training services in the missile, space, and electronics programs.

The same five companies received prime contract awards of more than \$1 billion each in fiscal year 1968 as in fiscal year 1967. However, the McDonnell Douglas Corp. which placed No. 1 last year dropped to fifth place this year as each of the other four companies moved up one position. The five leading companies and a brief description of their more important work are as follows:

General Dynamics Corp., in second place last year, heads the list this year with \$2,230.3 million, or 5.8 percent of the total. The fiscal year 1967 volume for this company was \$1,831.9 million and its percentage was 4.7 percent. The company received contracts for aircraft, missiles and ships. Aircraft contracts include the F-111 fighter aircraft. Contracts awarded for ships were for alterations, conversions, maintenance and repair as well as for new construction of small craft, oillers, and submarines. Missiles included components as well as systems.

Lockheed Aircraft Corp. moved into second place on the list, receiving awards totaling \$1,870.2 million which represented 4.8 percent of the fiscal year 1968 total. Last year, ranking third, the dollar volume of awards to this company amounted to \$1,807.2 million or 4.6 percent of total. Lockheed's principal aircraft contracts include the C-5A Galaxy jet transport, the C-141A Starlifter jet cargo transport, the F-104 Starfighter, the P-3 Orion patrol bomber and the Cheyenne helicopter. Missile and satellite activities include the Polaris and Poseidon.

General Electric Co., whose contracts totaled \$1,488.7 million, 3.8 percent of total, ranks third. This compares with \$1,280.8 million or 3.3 percent of total in fiscal year 1967. Aircraft engines, particularly for the C-5A Galaxy and the F-4 Phantom, were an important part of this company's production and development effort. Ordnance contracts were for various types of guns and guidance and control systems for missiles. This company also received substantial contracts for electronics equipment and nuclear propulsion systems for ships.

United Aircraft Corp. received contracts amounting to \$1,321 million, 3.4 percent of total, which was sufficient for fourth place. Fiscal year 1967 awards to this company totaled \$1,097.1 million for 2.8 percent of total and fifth place. The prime contract work of this company is in the production of aircraft engines and engine spare parts. Contracts for aircraft were for the production of helicopters, principally the CH-54 Flying Crane, SH-3D Sea King and CH-53 Sea Stallion.

McDonnell Douglas Corp., in first place last year, fell to fifth place this year as reported contract awards, principally the F-4 aircraft, dropped by \$1,023.8 million. For fiscal year 1968, contract awards to this company totaled \$1,100.8 million or 2.8 percent of total. This compares with \$2,124.6 million and 5.4 percent for fiscal year 1967. The aircraft contracts of this company include the F-4 Phantom series of fighter and reconnaissance aircraft, the A-4/TA-4 jet attack/trainer aircraft and aircraft modification, overhaul and repair. Additionally, substantial effort is being made in the development of the Manned Orbiting Laboratory.

INDEX OF 100 PARENT COMPANIES WHICH WITH THEIR SUBSIDIARIES RECEIVED THE LARGEST DOLLAR VOLUME OF MILITARY PRIME CONTRACT AWARDS IN FISCAL YEAR 1968

RANK AND PARENT COMPANY

- | | |
|---|--|
| 89. Aerodex, Inc. | 18. Kaiser Industries Corp. |
| 74. Aerospace Corp. (N) | 64. Lear Siegler, Inc. |
| 61. American Machine & Foundry Co. | 8. Ling Temco Vought, Inc. |
| 71. American Manufacturing Co. of Texas | 14. Litton Industries, Inc. |
| 6. American Telephone & Telegraph Co. | 2. Lockheed Aircraft Corp. |
| 49. Asiatic Petroleum Corp. | 87. Lykes Corp. |
| 94. Atlas Chemical Industries, Inc. | 55. Magnavox Co. |
| 99. Automatic Sprinkler Corp. of America. | 17. Martin Marietta Corp. |
| 12. Avco Corp. | 53. Mason & Hanger Silas Mason Co. |
| 31. Bendix Corp. | 54. Massachusetts Institute of Technology (N) |
| 7. Boeing Co. | 5. McDonnell Douglas Corp. |
| 75. Cessna Aircraft Co. | 88. McLean Industries, Inc. |
| 62. Chamberlain Corp. | 51. Mobil Oil Corp. |
| 43. Chrysler Corp. | 80. Motorola, Inc. |
| 68. City Investing Co. | 66. National Presto Industries, Inc. |
| 47. Collins Radio Co. | 34. Newport News Shipbuilding & Dry Dock Co. |
| 69. Colt Industries, Inc. | 45. Norris Industries |
| 79. Condec Corp. | 9. North American Rockwell Corp. |
| 81. Continental Air Lines, Inc. | 22. Northrop Corp. |
| 86. Control Data Corp. | 21. Olin Mathieson Chemical Corp. |
| 72. Curtiss Wright Corp. | 57. Pacific Architects & Engineers, Inc. |
| 40. Day & Zimmerman, Inc. | 32. Pan American World Airways, Inc. |
| 38. Dupont E. I. de Nemours & Co. | 26. Radio Corp. of America |
| 59. Eastman Kodak Co. | 35. Raymond Morrison Knudsen (JV) ¹ |
| 76. Emerson Electric Co. | 15. Raytheon Co. |
| 33. F.M.C. Corp. | 23. Ryan Aeronautical Co. |
| 56. Fairchild Hiller Corp. | 50. Sanders Associates, Inc. |
| 82. Federal Cartridge Corp. | 77. Seatrail Lines, Inc. |
| 19. Ford Motor Co. | 36. Signal Cos., Inc. |
| 1. General Dynamics Corp. | 100. Smith Investment Co. |
| 3. General Electric Co. | 16. Sperry Rand Corp. |
| 10. General Motors Corp. | 44. Standard Oil Co. of California |
| 63. General Precision Equipment Corp. | 25. Standard Oil of New Jersey |
| 41. General Telephone & Electronic Corp. | 92. States Marine Lines, Inc. |
| 28. General Tire & Rubber Co. | 90. Susquehanna Corp. |
| 48. Goodyear Tire & Rubber Co. | 91. Sverdrup & Parcel & Associates, Inc. |
| 11. Grumman Aircraft Engineering Corp. | 52. T. R. W., Inc. |
| 78. Gulf Oil Corp. | 67. Teledyne, Inc. |
| 96. Harris-Intertype Corp. | 46. Texaco, Inc. |
| 65. Harvey Aluminum, Inc. | 38. Texas Instruments, Inc. |
| 93. Hazeltine Corp. | 13. Textron, Inc. |
| 37. Hercules, Inc. | 58. Thiokol Chemical Corp. |
| 20. Honeywell, Inc. | 42. Uniroyal, Inc. |
| 24. Hughes Aircraft Co. | 4. United Aircraft Corp. |
| 83. Hughes Tool Co. | 60. United States Steel Corp. |
| 30. International Business Machine Co. | 95. Vinnell Corp. |
| 98. International Harvester Co. | 84. Vitro Corp. of America |
| 29. International Telephone & Telegraph Corp. | 70. Western Union Telegraph Co. |
| 85. Johns Hopkins University (N) | 27. Westinghouse Electric Corp. |
| | 73. White Motor Co. |
| | 97. World Airways, Inc. |

¹Raymond International, Inc.; Morrison-Knudsen Co., Inc.; Brown & Root, Inc.; and J. A. Jones Construction Co.

(N) Nonprofit.

(JV) Joint venture.

100 COMPANIES AND THEIR SUBSIDIARIES LISTED ACCORDING TO NET VALUE OF MILITARY PRIME CONTRACT AWARDS, FISCAL YEAR 1968 (JULY 1, 1967 TO JUNE 30, 1968)

(Dollar amounts in thousands)

Rank and companies	Amount	Percent of U.S. total	Cumulative percent of U.S. total
U.S. total ¹	\$38,826,625	100.00	100.000
Total, 100 companies and their subsidiaries ²	26,171,192	67.41	67.41
1. General Dynamics Corp.....	2,231,488		
Dynatronics, Inc.....	27		
Stromberg Carlson Corp.....	7,782		
United Electric Coal Co.....	42		
Total.....	2,239,339	5.77	5.77
2. Lockheed Aircraft Corp.....	1,858,363		
Lockheed Shipbuilding Construction.....	11,834		
Total.....	1,870,197	4.82	10.59
3. General Electric Co.....	1,485,096		
General Electric Supply Co.....	3,611		
Total.....	1,488,707	3.83	14.42
4. United Aircraft Corp.....	1,320,991	3.40	17.82
5. McDonnell Douglas Corp.....	1,087,660		
Conduction Corp.....	5,372		
Mycon Mfg., Co.....	7,805		
Total.....	1,100,837	2.84	20.66
6. American Telephone & Telegraph, Co.....	161,405		
Chesapeake & Potomac Telephone, Co.....	13,018		
Illinois Bell Telephone, Co.....	38		
Mountain States Telephone & Telegraph, Co.....	1,872		
New England Telephone & Telegraph, Co.....	549		
New Jersey Bell Telephone, Co.....	529		
New York Telephone, Co.....	152		
Northwestern Bell Telephone, Co.....	235		
Ohio Bell Telephone, Co.....	601		
Pacific Northwest Bell Telephone.....	160		
Pacific Telephone & Telegraph, Co.....	225		
Southern Bell Telephone & Telegraph.....	2,178		
Southwestern Bell Telephone.....	1,197		
Teletype, Corp.....	22,591		
Western Electric Co., Inc.....	571,177		
Total.....	775,927	2.00	22.66
7. Boeing, Co.....	762,141	1.96	24.62
8. Ling Temco Vought, Inc.....	50,011		
Altec Service, Co.....	58		
Braniff Airways, Inc.....	46,304		
Continental Electronics Manufacturing Co.....	4,238		
Jefferson Wire & Cable Corp.....	151		
Jones & Laughlin Steel Corp.....	695		
Kentrone Hawaii, Ltd.....	8,549		
LTV Electro Systems.....	123,592		
LTV Aerospace Corp.....	487,762		
LTV Ling Altec, Inc.....	886		
Memcor, Inc.....	25,883		
National Car Rental System.....	11		
Okonite Co., the.....	1,656		
Wilson & Co., Inc.....	8,299		
Wilson Pharmaceutical & Chemical Corp.....	16		
Wilson Sporting Goods Co.....	150		
Total.....	758,261	1.95	26.57
9. North American Rockwell Corp.....	668,482		
Remmert-Werner, Inc.....	159		
Total.....	668,641	1.72	28.29
10. General Motors Corp.....	629,515		
Frigidaire Sales Corp.....	95		
Total.....	629,610	1.62	29.91
11. Grumman Aircraft Engineering Corp.....	629,197	1.62	31.53
12. Avco Corp.....	583,648	1.50	33.03

See footnotes at end of table.

100 COMPANIES AND THEIR SUBSIDIARIES LISTED ACCORDING TO NET VALUE OF MILITARY PRIME CONTRACT AWARDS, FISCAL YEAR 1968 (JULY 1, 1967 TO JUNE 30, 1968)—Continued

(Dollar amounts in thousands)

Rank and companies	Amount	Percent of U.S. total	Cumulative percent of U.S. total
13. Textron, Inc.	\$18,438		
Accessory Products Co.	133		
Bell Aerospace Corp.	478,691		
Bell Aerosystems Co.	100		
Bostich, Inc.	14		
Camcar Screw & Manufacturing Co.	80		
Fafnir Bearing Co.	1,501		
Fanner Manufacturing Co.	66		
Talon, Inc.	332		
Textron Electronics, Inc.	993		
Townsend Co.	297		
Waterbury Farrel	102		
Total	500,747	1.29	34.32
14. Litton Industries, Inc.	28,752		
Aero Service Corp.	822		
Allis (Louis) Co.	1,318		
Alvey Ferguson Co.	130		
Clifton Precision Products Co.	27		
Eureka X-Ray Tube Corp.	33		
Ingalls Shipbuilding Corp.	277,289		
Kimball Systems, Inc.	22		
Litton Precision Products, Inc.	6,829		
Litton Systems, Inc.	150,386		
Monroe International, Inc.	43		
Profexray, Inc.	27		
Royal Typewriter Co, Inc.	13		
Total	465,691	1.20	35.52
15. Raytheon Co.	431,241		
Amana Refrigeration, Inc.	18		
Machlett Laboratories, Inc.	19,350		
Micro State Electronics Corp.	125		
Raytheon Education Co.	926		
Seismograph Service Corp.	94		
Total	451,754	1.16	36.68
16. Sperry Rand Corp.	447,197	1.15	37.83
17. Martin Marietta Corp.	357,642		
Amphenol-Borg Electronics, GMBH	286		
Bunker Ramo Corp.	35,526		
Total	393,454	1.01	38.84
18. Kaiser Industries Corp.	97		
Kaiser Aerospace & Electronics Co.	5,615		
Kaiser Jeep Corp.	295,803		
Kaiser Steel Corp.	52,836		
National Steel & Shipbuilding Co.	31,983		
Total	386,334	1.00	39.84
19. Ford Motor Co.	76,771		
General Micro-Electronics, Inc.	170		
Philco Ford Corp.	304,403		
Total	381,344	.98	40.82
20. Honeywell, Inc.	351,625		
Computer Control Co., Inc.	57		
Total	351,682	.91	41.73
21. Olin Mathieson Chemical Corp.	329,415	.85	42.58
22. Northrop Corp.	182,150		
Hallcrafters Co.	33,467		
Northrop Carolina, Inc.	26,183		
Page Communications Engineers, Inc.	67,934		
Secoa, Inc.	493		
Warnecke Electron Tubes, Inc.	29		
Total	310,256	.80	43.38

See footnotes at end of table.

100 COMPANIES AND THEIR SUBSIDIARIES LISTED ACCORDING TO NET VALUE OF MILITARY PRIME CONTRACT AWARDS, FISCAL YEAR 1968 (JULY 1, 1967 TO JUNE 30, 1968)—Continued

(Dollar amounts in thousands)

Rank and companies	Amount	Percent of .S. total	Cumulative percent of U.S. total
23. Ryan Aeronautical Co.....	\$133,751		
Continental Aviation & Engineering Corp.....	39,142		
Continental Motors Corp.....	111,891		
Wisconsin Motor Corp.....	8,374		
Total.....	293,158	0.76	44.14
24. Hughes Aircraft Co.....	285,858		
Meva Corp.....	251		
Total.....	286,109	.74	44.88
25. Standard Oil of New Jersey.....	148		
American Cryogenics, Inc.....	251		
Enjay Chemical Co.....	93		
Esso A. G.....	1,310		
Esso International Corp.....	144,905		
Esso Petrol Co., Ltd.....	92		
Esso Research & Engineering Co.....	1,164		
Esso Standard Eastern, Inc.....	340		
Esso Standard Italiana.....	2,035		
Esso Standard Oil Co., S. A.....	2,584		
Esso Standard SAF.....	119		
Esso Standard Thailand, Ltd.....	124		
Humble Oil & Refining Co.....	121,212		
Total.....	274,377	.71	45.59
26. Radio Corp. of America.....	254,961		
RCA Defense Electronics Corp.....	39		
RCA Institutes, Inc.....	12		
Total.....	255,012	.66	46.25
27. Westinghouse Electric Corp.....	247,664		
Thermo King Corp.....	1,466		
Thermo King Sales & Service.....	66		
Westinghouse Electric Supply Co.....	1,319		
Westinghouse Learning Corp.....	524		
Total.....	251,039	.65	46.90
28. General Tire & Rubber Co.....	11,636		
Aerojet Delft Corp.....	979		
Aerojet General Corp.....	210,232		
Batesville Mfg. Co.....	24,182		
Fleetwood Corp.....	10		
Frontier Airlines, Inc.....	21		
General Tire International Co.....	996		
Total.....	248,056	.64	47.54
29. International Telephone & Tel. Corp.....	135,713		
Amplex Corp.....	67		
Barton Instrument Corp.....	37		
Consolidated Electric Lamp Co.....	11		
Continental Baking Co.....	2,194		
Federal Electric Corp.....	65,499		
ITT Electro Physics Laboratories.....	2,715		
ITT Gilfillan, Inc.....	34,809		
ITT Technical Services, Inc.....	521		
Total.....	241,566	.62	48.16
30. International Business Machine Co.....	223,023		
Science Research Associates, Inc.....	199		
Service Bureau Corp.....	439		
Total.....	223,661	.58	48.74

See footnotes at end of table.

100 COMPANIES AND THEIR SUBSIDIARIES LISTED ACCORDING TO NET VALUE OF MILITARY PRIME CONTRACT AWARDS, FISCAL YEAR 1968 (JULY 1, 1967 TO JUNE 30, 1968)—Continued

(Dollar amounts in thousands)

Rank and companies	Amount	Percent of U.S. total	Cumulative percent of U.S. total
31. Bendix Corp.....	\$214,398		
Bendix Field Engineering Corp.....	7,426		
Bendix Westinghouse Automotive.....	175		
Dage Electric Co., Inc.....	13		
Fram Corp.....	1,017		
Mosaic Fabrications, Inc.....	195		
P. & D. Mfg. Co., Inc.....	331		
Total.....	223,555	0.58	49.32
32. Pan American World Airways, Inc.....	205,652	.53	49.85
33. F M C Corp.....	175,860		
Gunderson Bros. Engineering Corp.....	9,406		
Total.....	185,266	.48	50.33
34. Newport News Shipbuilding & Dry Dock Co.....	181,248		
Nuclear Service & Construction Co., Inc.....	61		
Total.....	181,309	.47	50.00
35. Raymond Morrison Knudsen (JV).....	176,000	.45	51.25
36. Signal Companies, Inc. (The):			
Dunham Bosh, Inc.....	465		
Garrett Corp.....	114,620		
Mack Trucks, Inc.....	48,407		
Signal Oil & Gas Co.....	5,792		
Southland Oil Corp.....	2,287		
Total.....	171,571	.44	51.69
37. Hercules, Inc.....	170,242		
Havog Industries, Inc.....	1,119		
Total.....	171,361	.44	52.13
38. Du Pont, E. I. de Nemours & Co.....	30,662		
Remington Arms Co.....	139,907		
Total.....	170,569	.44	52.57
39. Texas Instruments, Inc.....	169,271	.44	53.01
40. Day & Zimmerman, Inc.....	166,240	.43	53.44
41. General Telephone & Electronics Corp.....	93		
Automatic Electric Co.....	9,682		
Automatic Electric Sales Corp.....	1,829		
General Telephone & Electronic Laboratories.....	273		
General Telephone Co. of Southeast.....	151		
Hawaiian Telephone Co.....	4,626		
Lenkurt Electric Co., Inc.....	8,650		
Sylvania Electric Products, Inc.....	133,706		
Total.....	159,010	.41	53.85
42. Uniroyal, Inc.....	154,163		
Uniroyal International Corp.....	136		
Total.....	154,299	.40	54.25
43. Chrysler Corp.....	146,586		
Factory Motor Parts Co.....	14		
Total.....	146,600	.38	54.63

See footnotes at end of table.

100 COMPANIES AND THEIR SUBSIDIARIES LISTED ACCORDING TO NET VALUE OF MILITARY PRIME CONTRACT AWARDS, FISCAL YEAR 1968 (JULY 1, 1967 TO JUNE 30, 1968)—Continued

[Dollar amounts in thousands]

Rank and companies	Amount	Percent of U.S. total	Cumulative percent of U.S. total
44. Standard Oil Co. of California.....	\$71,462		
Caltex Asia, Ltd. ³	1,853		
Caltex Oil Products Co. ³	61,766		
Caltex Oil Thailand, Ltd. ³	1,995		
Caltex, Overseas, Ltd. ³	379		
Caltex Philippines, Inc. ³	436		
Chevron Asphalt Co.....	50		
Chevron Chemical Co.....	797		
Chevron Oil Co.....	2,153		
Chevron Oil Co. of Venezuela.....	1,610		
Chevron Shipping Co.....	1,297		
Standard Oil Co. Kentucky.....	2,297		
Standard Oil Co. Texas.....	122		
Total.....	146,217	0.38	55.01
45. Norris Industries.....	139,064		
Fyr Fyter Co.....	202		
Total.....	139,266	.36	55.37
46. Texaco, Inc.....	45,404		
Caltex Asia, Ltd. ³	1,853		
Caltex Oil Products Co. ³	61,766		
Caltex Oil Thailand, Ltd. ³	1,995		
Caltex Overseas, Ltd. ³	379		
Caltex Philippines, Inc. ³	436		
Jefferson Chemical Co., Inc.....	105		
Texaco Antilles, Ltd.....	88		
Texaco Export, Inc.....	22,561		
Texaco Puerto Rico, Inc.....	2,451		
White Fuel Co., Inc.....	984		
Total.....	138,022	.36	55.73
47. Collins Radio Co.....	134,754	.35	56.08
48. Goodyear Tire & Rubber Co.....	55,358		
Goodyear Aerospace Corp.....	76,201		
Motor Wheel Corp.....	2,046		
Total.....	133,605	.34	56.42
49. Asiatic Petroleum Corp.....	132,796	.34	56.76
50. Sanders Associates, Inc.....	130,830		
Mithras, Inc.....	481		
Total.....	131,311	.34	57.10
51. Mobil Oil Corp.....	128,065	.33	57.43
52. T.R.W., Inc.....	126,363		
Globe Industries, Inc.....	348		
International Controls Corp.....	672		
Ramsey Corp.....	14		
United-Carr, Inc.....	70		
Total.....	127,467	.33	57.76
53. Mason & Hanger Silas Mason Co.....	127,064	.33	58.09
54. Massachusetts Institute of Technology (N).....	124,143	.32	58.41
55. Magnavox Co.....	123,100	.32	58.73
56. Fairchild Hiller Corp.....	121,165		
Burns Aero Seat Co., Inc.....	94		
Total.....	121,259	.31	59.04
57. Pacific Architects & Engineers, Inc.....	120,895	.31	59.35
58. Thiokol Chemical Corp.....	119,363	.31	59.66
59. Eastman Kodak Co.....	117,566		
Eastman Chemical Products Corp.....	51		
Eastman Kodak Stores, Inc.....	706		
Total.....	118,323	.30	59.96
60. United States Steel Corp.....	108,322		
Reactive Metals, Inc.....	161		
U.S. Steel International, Inc.....	7,679		
Total.....	116,162	.30	60.26

See footnotes at end of table.

100 COMPANIES AND THEIR SUBSIDIARIES LISTED ACCORDING TO NET VALUE OF MILITARY PRIME CONTRACT AWARDS, FISCAL YEAR 1968 (JULY 1, 1967 TO JUNE 30, 1968)—Continued

[Dollar amounts in thousands]

Rank and companies	Amount	Percent of U.S. total	Cumulative percent of U.S. total
61. American Machine & Foundry Co.....	\$108,871		
Cuno Engineering Corp.....	1,052		
Total.....	109,923	0.28	60.54
62. Chamberlain Corp.....	104,441	.27	60.81
63. General Precision Equipment Corp:			
American Meter Controls, Inc.....	29		
Controls Co., of America.....	377		
General Precision Decca Systems.....	90		
General Precision Systems, Inc.....	86,361		
Graflex, Inc.....	1,571		
Industrial Timer Corp.....	15		
National Theatre Supply.....	16		
Strong Electric Corp.....	3,605		
Tele-Signal Corp.....	9,686		
Vapor Corp.....	2,194		
Total.....	103,944	.27	61.08
64. Lear Siegler, Inc.....	74,000		
American Avitron.....	43		
L S I Service Corp.....	27,526		
Transport Dynamics, Inc.....	685		
Verd A Rey Corp.....	18		
Total.....	102,272	.26	61.34
65. Harvey Aluminum Inc.....	25,048		
Harvey Aluminum Sales.....	74,045		
Total.....	99,093	.26	61.60
66. National Presto Industries, Inc.....	96,886	.25	61.85
67. Teledyne, Inc.....	77,173		
Adcom, Inc.....	309		
Amelco, Inc.....	4,146		
Continental Device Corp.....	27		
Crystalonics, Inc.....	13		
Electro Development Co.....	50		
Geotechnical Corp.....	25		
Getz William Corp.....	128		
Gill Electric Manufacturing Corp.....	517		
Hydra Power Corp.....	1,017		
Irby Steel Co.....	59		
Isotopes, Inc.....	802		
Landis Machine Co.....	22		
Micronetics, Inc.....	346		
Microwave Electronics Corp.....	30		
Milliken D. B. Co., Inc.....	1,024		
National Geophysical Co., Inc.....	92		
Ordnance Specialties, Inc.....	24		
Packard Bell Electronics Corp.....	6,504		
Penn Union Electric Corp.....	11		
Pines Engineering Co., Inc.....	158		
Rodney Metals, Inc.....	11		
Wah Chang Corp.....	26		
Total.....	92,514	.24	62.09
68. City Investing Co.:			
American Electric Co.....	35,966		
Hayes Holding Co.....	49,002		
Rheem Manufacturing Co.....	1,857		
Wilson Shipyard, Inc.....	164		
Total.....	86,989	.22	62.31
69. Colt Industries, Inc.....	2,258		
Chandler Evans, Inc.....	10,087		
Colts, Inc.....	68,989		
Elox Corp.....	194		
Fairbanks Morse, Inc.....	4,582		
Pratt & Whitney, Inc.....	436		
Total.....	86,546	.22	62.53

See footnotes at end of table.

100 COMPANIES AND THEIR SUBSIDIARIES LISTED ACCORDING TO NET VALUE OF MILITARY PRIME CONTRACT AWARDS, FISCAL YEAR 1968 (JULY 1, 1967 TO JUNE 30, 1968)—Continued

(Dollar amounts in thousands)

Rank and companies	Amount	Percent of U.S. total	Cumulative percent of U.S. total
70. Western Union Telegraph Co.....	\$79,299	0.20	62.73
71. American Manufacturing Co., of Texas.....	76,552	.20	62.93
72. Curtiss-Wright Corp.....	74,799		
Comet Tool & Die Co.....	350		
Zarkin Machine Co.....	275		
Total.....	75,424	.19	63.12
73. White Motor Co.....	15,976		
Hercules Engines, Inc.....	58,610		
Minneapolis Moline, Inc.....	394		
Total.....	74,980	.19	63.31
74. Aerospace Corp (N).....	73,451	.19	63.50
75. Cessna Aircraft Co.....	71,834		
Aircraft Radio Corp.....	1,076		
Total.....	72,910	.19	63.69
76. Emerson Electric Co.....	63,776		
Pace, Inc.....	68		
Rantec Corp.....	31		
Ridge Tool Co.....	26		
Supreme Products Corp.....	8,807		
Wiegand (Edwin L.) Co.....	134		
Total.....	72,842	.19	63.88
77. Seatrain Lines, Inc.....	42,039		
Commodity Chartering Corp.....	1,667		
Hudson Waterways Corp.....	22,547		
Transeastern Shipping Corp.....	4,348		
Total.....	70,601	.18	64.06
78. Gulf Oil Corp.....	66,934		
Goodrich Gulf Chemicals, Inc.....	81		
Gulf Oil Trading Co.....	259		
Pittsburg Midway Coal Mining Co.....	104		
Total.....	67,378	.17	64.23
79. Condec Corp.....	65,162		
Consolidated Controls Corp.....	1,587		
NJE Corp.....	155		
Total.....	66,904	.17	64.40
80. Motorola, Inc.....	65,715		
Motorola Overseas Corp.....	218		
Total.....	65,933	.17	64.57
81. Continental Air Lines, Inc.....	64,523	.17	64.74
82. Federal Cartridge Corp.....	64,519	.17	64.91
83. Hughes Tool Co.....	62,353	.16	65.07
84. Vitro Corp. of America.....	59,674		
Vitre Minerals Corp.....	1,471		
Total.....	61,145	.16	65.23
85. Johns Hopkins University (N).....	57,674	.15	65.38
86. Control Data Corp.....	50,225		
Associated Aero Science Labs, Inc.....	1,891		
C.E.I.R., Inc.....	852		
Control Corp.....	142		
Electronic Accounting Card Corp.....	723		
Pacific Technical Analysts, Inc.....	1,705		
T.R.G., Inc.....	1,264		
Total.....	56,802	.15	65.53

See footnotes at end of table.

100 COMPANIES AND THEIR SUBSIDIARIES LISTED ACCORDING TO NET VALUE OF MILITARY PRIME CONTRACT AWARDS, FISCAL YEAR 1968 (JULY 1, 1967 TO JUNE 30, 1968)—Continued

[Dollar amounts in thousands]

Rank and companies	Amount	Percent of U.S. total	Cumulative percent of U.S. total
87. Lykes Corp.....	\$55,247		
Gulf & South American Steamship Co.....	683		
Total.....	55,930	0.14	65.67
88. McLean Industries, Inc.:			
Equipment, Inc.....	5,902		
Gulf Puerto Rico Lines, Inc.....	259		
Sea-Land Service, Inc.....	49,751		
Total.....	55,912	.14	65.81
89. Aerodex, Inc.....	55,345	.14	65.95
90. Susquehanna Corp.....	2,415		
Atlantic Research Corp.....	51,452		
Xebec Corp.....	886		
Total.....	54,763	.14	66.09
91. Sverdrup & Parcel & Assocs., Inc.....	1,396		
ARO, Inc.....	53,165		
Total.....	54,561	.14	66.23
92. States Marine Lines, Inc.....	54,015	.14	66.37
93. Hazeltine Corp.....	53,781	.14	66.51
94. Atlas Chemical Industries, Inc.....	53,574	.14	66.65
95. Vinnell Corp.....	51,608	.13	66.78
96. Harris-Intertype Corp.....	13		
Gates Radio Co.....	796		
PRD Electronics, Inc.....	20,613		
Radiation, Inc.....	2,156		
Total.....	51,478	.13	66.01
97. World Airways Inc.....	51,358	.13	67.04
98. International Harvester Co.....	51,271	.13	67.17
99. Automatic Sprinkler Corp., America.....	50,395		
Badger Fire Extinguisher Co.....	38		
Total.....	50,433	.13	67.30
100. Smith Investment Co:			
Smith A. O. Corp.....	48,323		
Smith A. O. of Texas.....	9,998		
Total.....	50,321	.13	67.43

¹ Net value of new procurement actions minus cancellations, terminations, and other credit transactions. The data include debit and credit procurement actions of \$10,000 or more, under military supply, service, and construction contracts for work in the United States plus awards to listed companies and other U.S. companies for work overseas. Procurement actions include definitive contracts, the obligated portion of letter contracts, purchase orders, job orders, task orders, delivery orders, and any other orders against existing contracts. The data do not include that part of indefinite quantity contracts that have not been translated into specific orders on business firms, nor do they include purchase commitments or pending cancellations that have not yet become mutually binding agreements between the government and the company.

² The assignment of subsidiaries to parent companies is based on stock ownership of 50 percent or more by the parent company, as indicated by data published in standard industrial reference sources. The company totals do not include contracts made by other U.S. Government agencies and financed with Department of Defense funds, or contracts awarded in foreign nations through their respective governments. The company names and corporate structures are those in effect as of June 30, 1968, and for purposes of this report company names have been retained unless specific knowledge was available that a company had been merged into the parent or absorbed as a division with loss of company identity. Only those subsidiaries are shown for which procurement actions have been reported.

³ Stock ownership is equally divided between Standard Oil Co. of California and Texaco, Inc.; half of the total of military awards is shown under each of the parent companies.

⁴ Does not agree with percentage shown on p. 7 due to rounding.

HIRING OF RETIRED MILITARY PERSONNEL

Mr. SHILLITO. We are making available to your committee a copy of my letter of June 10, 1969, which completes our analysis of this matter. Your perusal of this material must lead to the conclusion that there has not been an abnormal increase in the numbers of retired military going to work for industry.

I would like to say I am not advocating people going from the military to industry. All I am saying is that you cannot come to the conclusion that there has been abnormal growth from 1959 to 1969.

(The letter follows:)

ASSISTANT SECRETARY OF DEFENSE,
Washington, D.O., June 10, 1969.

Hon. WILLIAM PROXMIRE,
U.S. Senate,
Washington, D.C.

DEAR SENATOR PROXMIRE: In my letter to you of April 10, 1969, on the subject of retired military officers employed by defense contractors, I indicated that some contractors had not identified the military ranks held by their employees, that there were some inaccuracies in the contractor listings, and that you would be informed of any corrections based on review of service records. I also indicated we were developing additional data that might be of interest to you and your committee. The lists submitted by those contractors included, according to our initial count, 2,122 names.

We have made an accounting of these officers and are enclosing the following with respect to a revised count of 2,135:

List I is composed of the names of the 1,643 retired regular officers included in the names submitted by the contractors. They include both nondisability and disability retirees. Also shown on this list are the date of retirement and the date that the officer was hired by the present employer.

List II contains the names of the remaining 492 officers. We have thus far been unable to identify 209 of the names submitted by the contractors from our records. The principal reasons for this are that the names provided by the contractors were insufficient or incorrect or data was omitted, such as the branch of service. Reserve officers, some of whom are still active in the Reserves, number 243. There were 28 officers of lower rank than colonel/captain included by the contractors as well as 11 Coast Guard retirees and one retired Canadian Army officer.

Other figures developed from previous DOD surveys show the following statistics which are germane to any consideration of the subject, all of which relate only to retired officers of the rank of colonel and Navy captain, and higher:

The estimated number actually employed in all occupations rose from about 9,950 in 1959 to about 22,700 in 1968—an increase of 128 percent.

The estimated number engaged in teaching rose from about 1,260 in 1959 to about 3,100 in 1968—an increase of 146 percent.

The estimated number identified as clergy, public officials, and public administrators went from 867 in 1959 to 1,869 in 1968—an increase of 116 percent.

The estimated number in the nondefense occupations of farmers, proprietors, and insurance and real estate agents increased from 1,574 in 1959 to 3,385 in 1968—an increase of 115 percent.

The total in 1969 for Regulars, reservists, and persons who we have been unable to identify thus far is 2,095. In 1959, 767 senior retired officers were reported as being employed by the then top 100 contractors. The net rise between 1959 and 1969 of 1,328 is an increase of 173 percent. Such an increase must be considered in the light of the above and other factors. For example, over the last 10 years there has been a general increase in business activity by these contractors. The list of the top 100 in 1968 is equivalent to the top 100 in 1959, plus an additional 31 firms which have been merged with or acquired by the present top 100 contractors. I might also add that the number of retired generals and admirals employed by these contractors has actually declined in this period, notwithstanding that their number has increased.

Most important, however, we believe that the weapon systems acquisition process in the Department of Defense is organized in such a fashion to preclude the injection of bias or favoritism into the selection process. Also, laws and regulations govern all of our 700,000 retired military personnel with respect to conflicts of interest.

We respectfully request that this and my previous letter be placed in the Congressional Record in amplification of the information published on March 24, 1969.

Sincerely,

BARRY J. SHILLITO,
Assistant Secretary of Defense,
Installations and Logistics.

Mr. MAHON. When we come to the questions we want to ask you is this a good trend or bad trend, or should we bar them?

(Discussion off the record.)

Mr. MAHON. You may proceed.

Mr. SHILLITO. The question is not whether there is a complex. Of course there is. This country is made up of complexes. There is a political complex, a communications or news media complex, a legal complex, a medical complex—to name a few. In industry, there is a petroleum complex, a mining complex, an electronics complex, and so on. The real question is whether we have sufficient checks and balances built into our system to preclude unwarranted influence. This will be precluded if we use President Eisenhower's advice to remain on our guard. I believe that we are doing just that.

I believe that those who use the expression, "military-industrial complex" to infer that excessive profits, excess costs, and unknown estimate of wastes—or even corruption—permeate the Defense procurement program should be reminded of certain uncontroverted facts:

Defense procurement is conducted in strict accordance with Federal statutes.

It is conducted in a public forum—where there are no secret deals.

It is subject to continued scrutiny by many divergent elements—from the GAO and the Congress—to indignant contractors.

It is subject to professional audit—by GAO, by Defense auditors, and by the Congress.

Very specific laws limit the activities of persons leaving Government and going into nongovernmental endeavors.

DEFENSE PROFITS

It is our intent to safeguard against profiteering—and we believe we have available (i) sufficient information to detect changes in current trends in profit levels, and (ii) procedures to influence future trends, if necessary.

Within the Department, there is a profit review system which picks up and displays on a Department-wide basis "going-in" profit rates on all noncompetitive negotiated contracts over \$200,000. The same system provides "earned" profits on all contracts with the exception of firm fixed-price type.

In addition, the Department has a study of realized profit rates on selected Defense contracts conducted by the Logistics Management Institute. I was responsible for this study during my period as president of LMI. The study covers the 10-year period, 1958-67; Bureau of the Budget has approved obtaining the same data for fiscal year 1968. The LMI study includes data on realized earning from firm fixed-price contracts as well as comparisons of profit to equity capital and total capital investment.

In addition to these sources, the Department within last year has been provided access to certain reports of the Renegotiation Board.

It is our view that the data presently available to us from our internal profit review system, the Logistics Management Institute study, and the Renegotiation Board data complement each other and provide an adequate comprehensive picture of the Defense industry profit situation.

Should the Congress consider that a greater understanding is needed regarding profits on Government contracts or that the Government should study alternative means of evaluating profit in relationship to both equity capital and total investment, conceivably the Renegotiation Board data could be expanded to provide for the collection of such data. I have also suggested that since the validity of the LMI data has been questioned by some congressional committees, the GAO be asked to study the LMI approach in detail and verify its statistical soundness and its conclusions.

AREAS OF GENERAL INTEREST

I would now like to highlight a few additional areas which I think may be of interest to this committee. These areas deal with the management of our overall logistic operations and, hopefully, will supply you with some information that may be of benefit to you in your future assessment of our conduct of our responsibilities. I understand that on some of these areas, this committee has expressed historic interest.

MULTISERVICE AIRCRAFT-INTEGRATED MANAGEMENT SUPPORT

Your committee has indicated a continuing interest in the important aspect of materiel management concerned with integrated weapon support for multiservice aircraft.

We agree that integrated materiel management for common-use weapon systems and equipment offers unique and significant opportunities for better weapon support with greater economy. Last year and the year before, this committee was informed of our objectives, plans, and interim accomplishments for eliminating duplicate materiel management assignments such as procurement, supply, maintenance, configuration control, technical manuals, and training through the consolidation of management responsibilities for multiservice aircraft. This year, I would like to summarize the more significant actions and to indicate accomplishments—both completed or planned. This can best be done in the interest of time by reviewing the F/RF-4 aircraft weapon system.

This weapon has been and is continuing to be used as the "test-bed" for integrated support management. A total of 29,410 F-4 items are under some form of integrated management. The Air Force, as integrated manager, provides total support to Navy on 5,527 items. Navy wholesale assets of these items were transferred on March 1, 1968, to Air Force stocks for consolidated management. Navy activities place requisitions for these items directly with the Air Force integrated manager for resupply support. For an additional 1,405 items, the Air Force provides single-service procurement. Arrangements have also been made for the interservicing of assets for an additional 2,478 items, including provisions for release in order to prevent not operational ready supply (NORS) aircraft. These figures are exclusive of the approximately 20,000 F-4 items managed by the Defense Supply Agency as the integrated manager.

The Air Force integrated manager has been testing procedures for management of a limited number of recoverable spares during the depot overhaul cycle. The DOD intends to pursue the consolidation

of depot maintenance workloads as an important part of integrated management and to apply this new form of integrated management whenever improved weapon support and economy will result. Experience gained from integrated support of this weapon is being applied to other multiservice aircraft.

MATERIEL CONTROL IN SOUTHEAST ASIA

With respect to the concern expressed by the committee that good materiel control be exercised in Southeast Asia, there are several programs underway and in effect to improve the management of inventory in Vietnam.

Late in 1967, it became evident that the speed and magnitude of the Vietnam buildup had, unavoidably, resulted in the accumulation of some imbalances and excesses in inventories. Action has been taken to initiate a program for the utilization and redistribution of these excesses against approved military requirements in the supply system. The Secretary of the Army is the executive agent for this effort and a general officer, Gen. John J. Hayes, has been designated as the project coordinator. The overall plan for the program was approved on March 1, 1968, and has the following salient features:

Excess materiel of all services in the Pacific area will be promptly identified.

These excesses will be screened and redistributed to satisfy service-wide requirements in the Pacific area.

Outstanding requisitions will be canceled promptly upon receipt of materiel.

Funding and budgetary adjustments will be accomplished at the departmental level.

Property found excess to Pacific area requirements will be reported to Conus inventory management for worldwide redistribution.

Excess property for which no DOD requirements exist will be disposed of in accordance with existing disposal procedures.

Since this program started 18 months ago, \$149 million worth of materiel has been distributed. An additional 102,264 items valued at \$177 million are presently being screened for redistribution to other potential users.

JOINT LOGISTICS REVIEW BOARD

On February 17 of this year, the Deputy Secretary of Defense issued a memorandum establishing the Joint Logistics Review Board. This Board is under the chairmanship of Gen. Frank S. Besson, Jr., USA, former Commander of the Army Materiel Command, and includes a senior general/flag officer from each service and the Defense Supply Agency, plus appropriate representation from the Joint Staff. This Board is charged with reviewing worldwide logistic support to U.S. combat forces during the Vietnam era so as to identify strengths and weaknesses and make appropriate recommendations for improvement. I am confident that the findings and recommendations of this Board will contribute significantly to the continuing long-term improvement of logistics systems.

I appreciate this opportunity of outlining a few areas of our actions in terms of where we are and where our efforts will be directed in the future.

Mr. MAHON. Mr. Secretary, Mr. Sikes will conduct the questioning for the committee.

IMPROVEMENTS IN DEFENSE OPERATIONS

Mr. SIKES. Thank you, Mr. Chairman.

Mr. Secretary, as you are aware, this year has been quite revealing from the standpoint of identifying instances of cost overruns, or "cost growth" as you prefer to call it.

I can call to mind the C-5A, the F-111, the MK-II avionics, the AH-56A Cheyenne helicopter, the Sheridan weapons system, Minuteman II, and the shipbuilding program of the Navy, to name the most notable ones. Reasons disclosed for these costly programs include improperly defined specifications, Government changes, delays in delivering Government-furnished equipment, underestimating by the Government and by contractors, the telescoping of production and R.D.T. & E., and the total package procurement method of contracting. I would like for you to discuss at this time your thoughts on the relative merits of the total package procurement concept.

(Discussion off the record.)

Mr. SIKES. I am going to suggest that you give us a brief summation of your thinking and that you then give us a more detailed answer for the record.

Mr. SHILLITO. Yes, sir. First, we are going through a very thorough scrubbing and screening of every major program that we have in the Department of Defense right now. We are reassessing—attempting to identify just exactly where we stand on the cost to complete today versus that which had been estimated as the cost to complete at the time the program was embarked on. I wonder if I could take a minute, Mr. Chairman, and maybe talk about this graphic depiction over here. I do not like the procedural flow, but I think it might help us a little to understand the kind of problem we are faced with.

Mr. MAHON. This will be all right, but I do not want you to get away from the main question here, which is a series of questions in one. You testified in your statement that there had been a gradual upgrading and improvement in the Defense Department in your judgment since the 1950's. I forgot the exact date you gave, and I am inclined there has been a continuous improvement. One might say how could there be an improvement in view of mistakes which have been made in recent years. I hope you will make it clear for the record just what you mean by the improvements.

Mr. SHILLITO. Yes, sir.

Mr. MAHON. Of course, this present Nixon administration which you are now serving has not had much time to make fundamental progress in this field. We are talking of the overall picture.

Mr. SHILLITO. Yes, sir.

(The information follows:)

WHAT WE MEAN BY IMPROVEMENTS

The following are examples of kinds of improvements made in defense logistics over the past 10 years:

ORGANIZATIONAL IMPROVEMENTS

Establishing of the Director of Defense Research and Engineering

A director of Defense Research and Engineering was established in the Office of the Secretary of Defense by the Defense Reorganization Act of 1958 with responsibility to direct and control the research and engineering for the development of new weapon systems. The concept formulation and contract definition management techniques were devised in that office. Reviews at critical decision points are made by that office during the development of all new weapons.

Establishment of project management capacity

Systems project management is also quite new having started in a small way in the late 1950's. It has now been imposed on all major weapon system acquisition programs. The purpose is to provide within the military department a manager to exercise executive authority over the planning, direction, and control of the approved program, and over the allocation and utilization of all resources approved in the 5-year force structure and financial plan. To further this management approach, DOD has established a school for project managers—the Defense Weapon Systems Management Center. The curriculum uses the accumulated experience throughout the DOD as the basis for training people from all parts of the DOD—Army, Navy, and Air Force.

Establishment of uniform contract administration capability

As a result of the DOD project 60 study conducted in 1962-63, the DOD plant cognizance program was established in October 1964 and assigned plant cognizance responsibility to selected DOD components for the performance of contract administration services at contractors' plants. Assignments were published in November 1964 followed by the publication of the DOD Directory of Contract Administration Services Components in March 1965. In February 1965 the Defense contract administration services (DCAS) of the Defense Supply Agency was established to consolidate field offices. The organization consists of 11 regional offices and a headquarters, and became fully operational in February 1966. This resulted in the consolidation into a single DOD component of functions which had previously been formed by as many as five separate contract administration services organizations. It also has resulted in a consolidation and codification of contract administration procedures.

Establishment of the Defense Contract Audit Agency

The Defense Contract Audit Agency was formed in July 1965 as a result of comments and recommendations over several years that the contract audit function performed separately in each of the three military departments was a function required on a common basis by all Defense procuring components. The consolidation has resulted in independent, objective and consistent cost recommendations and related audit advice to procurement personnel; uniform responsiveness to the procuring agencies; a uniform management, policy direction, utilization and training of the auditors; simplification of the process of obtaining Defense audit service by other Government agencies; and an arrangement under which all contractors would deal with a single DOD audit agency.

IMPROVEMENTS IN PROCUREMENT TECHNIQUES

Contract definition

In contract definition, DOD has evolved a major management improvement in the development of major systems. The aim is to better define our objectives before undertaking full-scale development. It is a process by which we, together with our contractors, do our thinking and planning for new major weapons—estimated to cost \$25 million or more—after making the conditional decision to acquire the system. Briefly, the contract definition phase is an arrangement with competing qualified industrial firms to define the program and establish the feasibility of its performance, time, and cost prior to authorizing full-scale development. At the beginning of contract definition we do not normally attempt to establish rigorous specifications. We prefer to encourage initiative and innovation on the part of competing contractors. The competing contractors can explore in depth the many unknowns which are present in any new effort. They can determine in outline the overall design and define the subsystem and major components. Most important, they can identify the critical problems and make good estimates of how long and how much money it will take to solve them.

With this information at hand, the Government is in a much better position to decide whether to proceed with full-scale development or concentrate on advancing requisite technology. If the answer is to proceed, we will be able to negotiate the development contract (and occasionally the subsequent production contract) with one of the contractors which has already been established with a visible history of successful collaboration during the contract definition phase. In this environment, it is possible to make the decision for full-scale development with far greater assurance that the cost estimates are sound, that the performance of the system will meet the promise, and that the military need will be filled at the time required.

Reduction in CPFF contracts

The use of CPFF contracts had risen to 38 percent in fiscal year 1961. Currently cost-type contracts account for less than 11 percent of all DOD purchases. DOD is using mainly incentive type contracts in place of CPFF contracts to motivate contractors to greater efficiencies.

Component breakout

This program was developed to increase competition or lower total costs. We break out components of major systems for competitive procurement where this can be done without endangering safety or operational effectiveness. For example, we buy the aircraft engines competitively and furnish them as Government-furnished property to the manufacturers of the aircraft. We buy many substantial components competitively, including the electrical, radar, and armament sections of the aircraft and furnish them to the aircraft producer. In addition, we may buy components from subcontractors and deliver them to the prime contractor to eliminate the prime's indirect costs and profits. We do this to the extent that it is economically beneficial.

Incentive contracting

The new emphasis DOD has placed on incentive types of contracts received its initial impetus through revision No. 8 of the armed services procurement regulations dated March 15, 1962. This revision emphasized the selection of contract types which provide maximum profit incentive for superior performance. We have made significant progress both in the quantity and quality of our incentive contracting. Since fiscal year 1961, we have obligated \$38 billion on incentive contracts which motivate the contractor toward achieving excellence and force very careful advance planning by both parties of all factors of weapon performance. Since October 14, 1963, when we initiated the advanced incentive contracting workshop, we have trained over 2,000 procurement and technical personnel in the most sophisticated techniques of structuring multiple incentive contracts. In August of 1962, we issued a DOD-wide Incentive Contracting Guide. This document has been revised and kept up to date. The Department of the Air Force, as executive agent, now has operational a DOD-wide computer service to aid all Departments in the evaluation and structuring of major multiple incentive contracts.

Advance procurement planning

Advance procurement planning is a means by which the efforts of all personnel responsible for the procurement of defense material by contract are coordinated as early as practicable in order to obtain required items of the requisite quality on time and at the lowest sound price. It involves the prospective analysis of requirements and the documentation of technical, business, policy, operational, and procurement considerations into a comprehensive procurement plan. These considerations include all operational requirements (time and mission goals), technical objectives (performance reliability, etc.) economic factors (potential costs), use of appropriate contract techniques, and compliance with procurement regulations and policies. Potential conflicting interfaces and any resulting essential trade-off decisions must be recognized to accomplish a sound material procurement program. Advance procurement planning establishes and graphically portrays realistic milestones to be met in achieving the goals of a specific program. The advance procurement plan serves as the principal long-range procurement planning document charting the course of major procurement programs over their lifecycle, keyed to the Department of Defense 5-year defense program.

Contractor performances evaluation

A defense program of contractor performance evaluation for major development contracts was established in 1963 to provide an orderly and uniform method of determining and recording the effectiveness of contractors in meeting their contractual commitments. In 1965 this program was expanded to include the production phases of these projects or weapons systems. This program now covers contractors receiving development contract awards whose projected cost exceeds \$2 million for a single year or if the projected overall cost exceeds \$10 million. In addition, a contractor performance record—a factual historical documentation of contract performance data—is required for supply contracts of \$100,000 or more. This record is maintained for the use of contracting officers in the selection of contractors for award of supply contracts of \$100,000 and over.

Multiyear procurement

Under this procurement technique, competition is obtained for current and future firm requirements for hardware items, with award made to the lowest bidder on the total quantity. Funds are obligated annually, as appropriated, on each program year's increment. With the assurance of production continuity and distribution of startup costs to larger quantities and over longer periods, and with elimination of potential recurring startup costs, we not only obtain substantially lower unit prices than we could get by annual competitions, but increase the number of suppliers interested in participating in the competition.

Two-step formal advertising

This is a method to obtain price competition under a sealed bid arrangement when available specifications are not adequate for conventional formal advertising. Conventional formal advertising requires that available specifications must be adequate to describe the product being purchased.

One of the major reasons that the Department of Defense uses negotiated contracts is that adequate specifications do not exist for many of the things we buy. That is particularly true with complex equipments. In the first step of two-step formal advertising, unpriced technical proposals are solicited and evaluated to screen out unresponsive proposals. The second step is a sealed bid procedure similar to regular formal advertising but participation is limited to those firms that submitted acceptable technical proposals in the first step.

Spare parts breakout

This program was initiated specifically to increase competitive procurements in replenishment spares and repair parts. Most of the manufacturers who are the prime contractors for our complex and sophisticated weapons systems, such as an airplane, rely upon subcontractors and vendors for spare parts. This program identifies those spare parts which have a high dollar value and identifies the supplier. The Government then attempts to obtain competition among a wide range of spare parts suppliers. If competition is not possible, the Government may purchase the part directly from its manufacturer to eliminate handling, overhead charges and profit which are added to its price by the prime contractor.

Weighted guidelines

This technique for establishing profit objectives was first introduced in the ASPR in August 1963 in response to a recognized need for more precise profit and fee guidance be developed. Using this method the Government negotiator gives consideration to over 20 different factors in the five major areas of the contractor input to total performance, selected factors such as source of resources and other special profit considerations. A study comparing profit patterns of contracts negotiated in 1966 to those negotiated in the years 1959-63 clearly indicates that the guidelines have succeeded in better alignment of profit patterns.

PERSONNEL DEVELOPMENT IMPROVEMENTS

DOD-wide career development program

The first DOD-wide career development program had been established covering procurement personnel. The program is a systematic approach to attract, develop, and retain qualified employees and to assure that they have adequate opportunities for improved career specialization and promotion. The two essential aspects of this system are:

(1) A detailed master development plan for every procurement employee which appraises and evaluates his career potential and identifies the required training and skills necessary to achieve that potential.

(2) A central automated inventory and referral system which inventories the skills and experience of all eligible GS-18 and above for use as a DOD-wide referral system when filling key procurement positions.

The procurement career development program is but a forerunner of DOD-wide programs in other occupational fields.

Defense procurement training program.

In 1962 we implemented the defense procurement training program designed to provide uniform joint training courses on a DOD-wide basis for the first time. Originally, 14 single service courses were revised for application to all military departments and the Defense Supply Agency. The success of this program, we believe, can be measured both quantitatively and qualitatively. For example, during fiscal year 1967 over 8,000 students completed one or more of the 48 DOD approved courses. Of these, over 5,100 attended resident courses offered by five specialized logistics training centers. In addition to our regularly scheduled training programs, we send traveling teams to our major procurement activities to orient procurement personnel in new techniques or programs. Both the development of course content and the quality of course presentation is monitored closely by OASD (I. & L.).

Mr. MAHON. Now proceed.

FORMULATION OF WEAPONS SYSTEMS

Mr. SHILLITO. We are talking about a situation here in which we are looking at the specific problem—"cost overruns" and what can be done about it. As I have explained, we must have a clear understanding—a clear definition of the term "overrun." Within the framework of the definitions I have previously given, we are concerned with AH-56, shipbuilding, and others.

Mr. MAHON. The Cheyenne.

Mr. SHILLITO. Yes; the Cheyenne. I would like to mention again that we are looking at major systems created by conditions arising outside defense. The need is brought into being as the result of our international commitments which surface a particular job to be done to offset a potential enemy capability.

Mr. MAHON. The concept may come from the Defense Department or it may come from industry.

Mr. SHILLITO. Yes; industry has a capability to make such an assessment, or it may come from the State Department. It may come from outside the Defense entirely. In fact, more often than not, this could be the case when there is an international commitment to be met.

The "old days" of a Government laboratory being the only group capable of formulating a particular weapon concept is just not part of today's environment. Our problem is to be sure that the threats are real and the counterreaction is both feasible and consistent with the degree of threat involved.

Mr. MAHON. In other words, you decide whether or not you might be able to cope with this threat by some means.

Mr. SHILLITO. That is right, that there is such a capability. This is not time oriented by the way. Defense procedures exist. We find ourselves going through what has been referred to, as concept formulation and contract definition.

(Clerk's note: Additional information is contained in the insert entitled "Management of Major Weapon Systems Acquisition," on pages 401 through 408.)

CONTRACT DEVELOPMENT CONCEPT PAPER

Mr. SHILLITO. Upstream from contract definition we have what is called, a development concept paper in which people at the very top of the Department review the basic issues concerning the need for a particular weapon system.

(Clerk's note: See pages 404 through 405 for additional information.)

Mr. MAHON. Off the record.
(Discussion off the record.)

PRODUCTION

Mr. SHILLITO. As I have said previously, the phase-over from development to production has been a severe overlap. We have been authorizing an extensive amount of production while there was still significant development to be finished. We are now attempting to benchmark specific things that must be accomplished in development before we authorize production.

Mr. MAHON. Mr. Secretary, this is very interesting and very helpful.

TOTAL PACKAGE PROCUREMENT

Mr. SHILLITO. Now let's take total package procurement for a moment.

When you ask the question, is total package procurement good or bad, I would say when properly used to buy the balance of development and some production in a competitive environment, it will frequently be good. I will be happy to furnish additional comments on the so-called total package procurement concept for the record.

(The information follows:)

RELATIVE MERITS OF THE TOTAL PACKAGE PROCUREMENT CONCEPT

The term, total package procurement (TPP), is unfortunately a misnomer which has often been interpreted to imply that we are purchasing in one contract, a total weapons system program. It infers that we are buying all the development, production, and conceivably all of the support required for the system * * * a virtually impossible task. More properly the term should connote that we are combining in a single competitive package the procurement of design and development, plus a significant portion of production. This might be more appropriately characterized and defined as a "development/production procurement" concept.

The purpose in placing as much of a program as possible under a competitive contract is to avoid the situation wherein the development portion of a program is awarded competitively but the larger and frequently more lucrative production contract is awarded on a sole source basis. This situation arises from the fact that, by the time the system is ready for production, the development contractor has become so involved in the program, and has acquired such extensive technical knowledge, that it is virtually impossible to change contractors at this point. Under the newer concept, competing contractors are required to offer firm commitments not only on development but on major segments of production and, to varying degrees, certain portions of the logistic support as well.

One of the most important factors to be considered in applying the concept is the degree of stability (or unknown requirements) in the engineering and production aspects of the program. Additionally, of course, we must have a high level of confidence that the program will not change appreciably prior to introducing the system or equipment into the inventory. While the concept is a meaningful step forward in Government procurement, we must emphasize that it is

not a panacea which will cure all of the problems in acquiring weapons systems.

When appropriately applied, there are a number of advantages that accrue from the use of this approach. For example, it:

(a) Supplies more detailed data for the 5-year force structure program package concerning performance, cost and schedule.

(b) Discourages contractors from buying in on the design and development effort with the intention of recovering on the subsequent production program.

(c) Permits program decision and source selection based on binding performance, price and schedule commitments by contractors for a major part of the total program.

(d) Provides a firmer basis for projecting total acquisition and operational costs for use in source selection and in the determination of appropriate contractual incentives.

(e) Encourages contractors to design initially for economical production and support of operational hardware which may otherwise not receive sufficient emphasis in the absence of production commitments.

(f) Motivates contractors to obtain components, supplies and subcontract work, which averages nearly 50 percent of most aircraft programs, from the most efficient sources, and by the most efficient means.

(g) Allows competition to be increased at the beginning, thereby decreasing the need for subsequent competitive reprourement of components. When a component has been originally built by or under the direction of a prime contractor and is then put out for competitive bidding and is built by another company, a risk concerning the integrity of the system as a whole is created, complete interchangeability of the component is threatened and a difficult logistics problem is further complicated by the introduction of a new part and part number. In addition, the delays associated with this procedure are in many cases costly and unacceptable.

(h) Requires contractors to assume more responsibility for program success, thereby permitting the Government to monitor programs more in terms of surveillance rather than in terms of detailed management direction.

The concept is, of course, not without its disadvantages. However, we believe that the disadvantages are within manageable bounds when the concept is appropriately applied. Among the disadvantages often cited are:

(a) The proposal expense to the contractor may increase due to the intense competitive pressures and the risks introduced through long-term contractual commitments.

(b) The severe competition places greater financial risk on the contractor, a risk caused by the contractor having to price out the total weapon system program prior to completion of the detail design.

(c) The program definition may occur prematurely since the contractor must price the weapon system before completing the detail design.

(d) The Government could receive a marginally performing weapon system if the contractor designed only for maximum economies in production. Such an approach would place disproportionate emphasis on cost controls to the detriment of system performance.

(e) Due to the competitive pressures during Contract Definition, contractors sometimes expend funds over and above those provided by contract for this purpose.

On balance, we believe that the concept of purchasing design, development, and a significant portion of production under the umbrella of competition is one which offers many advantages to the Government. As indicated earlier, however, it is not a weapons acquisition panacea. Simply stated, it must be used with discretion and sound judgment, and be specifically tailored to fit the procurement situation at hand.

CAUSES OF COST OVERRUNS

Mr. LIPSCOMB. Just to be clear on this, is this chart supposed to represent a new procedure or a new thought?

Mr. SHILLITO. This is strictly an attempt to procedurally put together the flow of what happens.

Mr. LIPSCOMB. What you have told us now is not new to this committee. What we are trying to find out is what went wrong. If you

have been using this system, what went wrong and what have you been doing to correct it?

The only difference I have heard you say is that you are going to have full-scale development more defined and refined before you go into production.

Mr. SHILLITO. That is right.

Mr. LIPSCOMB. That is a new wrinkle, isn't it?

Mr. SHILLITO. Yes, sir.

Mr. LIPSCOMB. This committee is completely familiar with building the program but what went wrong? That is what we are trying to find out.

Mr. FLOOD. This is exactly what was in my mind. You gave me the impression, Mr. Secretary, in the last 10 minutes on that chart that you have suddenly uncovered a very difficult problem extending full-scale development into the area of production. All of a sudden somebody has found that out and found out it is a very, very complicated, difficult thing. Well, what in the world is new about that?

Mr. SHILLITO. I didn't mean to give that impression; sir, at all.

Mr. FLOOD. Well, you did to me.

Mr. SHILLITO. All I am saying is, there has been too much in the way of an overlap between development and production. We have not worked ourselves out of the development problem prior to going into production and this is one of our major problems. That is the one point that I wanted to make in discussing that chart, sir.

(Clerks note: The following insert regarding the question "What went wrong?" was provided for the record:)

The question "What went wrong?" that resulted in substantial overruns in major weapons acquisition projects must be viewed in the context of a continuum in weapon systems improvements. The management approach which I have described was designed to correct, insofar as was feasible, a number of problems which were recognized as early as the late 1950's. Generally, we were achieving performance in new weapons but at the expense of substantial delays in development time, which have been estimated by some authorities in the neighborhood of 80 percent, and substantial cost increases on the order of 220 percent greater than original cost estimates. It was thought that by use of the technique of formalized system engineering analysis that we could introduce better definition of the requirements for new systems before initiating full scale development with the result that more realistic schedules and more credible cost estimates would be known.

We do not have much evidence yet as to the adequacy of these new procedures except in those cases which have been held up to public view. Further improvement in our management scheme is necessary in at least three areas.

1. There is a need for more hardware demonstration of performance before undertaking full scale development. The view has been expressed that too much reliance has been placed on analysis and/or essential paper studies. It follows that there has not been enough emphasis on advance development, particularly in the area of hardware demonstrations of critical high risk elements of major systems. We are presently studying ways to increase testing of components, sub-systems and systems within major weapons before undertaking full scale development.

2. There is a need to more often defer commitment of major weapons to production until after substantial performance demonstration has occurred. The planning for new weapons has involved far too much concurrency between development and production in those cases where we have failed to resolve development problems prior to initiation of production. Costs appear to have grown excessively in rework of tooling and in rework of finished hardware. We are now studying ways to implement the concept of development milestone demonstrations as a precondition of proceeding with the various phases of development and more importantly, as a condition of entering volume production.

3. We need to find means of improving the reliability of cost estimating. We are hopeful that the introduction of more hardware demonstration during the concept formulation period and the contract definition phase will result in reducing areas of development unknowns. We are studying ways to give increased emphasis to production planning in the contract definition phase. We expect to make increasing use of independent government cost estimates based on mathematical and engineering models which we expect to update at the end of contract definition based on the results of the contractors' efforts prior to the source selection evaluation. We anticipate that the data available in the future from cost information reporting and selected acquisition reporting will provide a more adequate historical base from which to project future estimates.

I do not mean to infer that other things may not have gone wrong. However, I would say that if there was a failure in our management planning, it was one of inadequate recognition of what needed to be done at the time to improve the overall management required.

PRODUCTION PRIOR TO COMPLETION OF DEVELOPMENT

Mr. SIKES. The committee has been concerned, and rightly so, over the concurrency of R.D.T. & E. and production, a trend followed in recent years in the procurement of major weapons systems. The result has been disastrous in such cases as the Cheyenne and Sheridan. We seem to have abandoned completely the "fly before buy" concept. What actions are you taking to avoid a commitment to production before we are assured of a workable weapon system in the research and development phase, or do you recommend any change?

Mr. SHILLITO. We have taken several actions, Mr. Chairman. First of all, as you know, the primary management responsibility for these systems rests with the services. Those of us in staff and policy responsible positions are primarily concerned with insuring that those persons in the Services having the primary line responsibility are able to most effectively carry out their responsibilities.

The one action being taken, of course, is what we have been talking about, that is, making our production decisions tied to development accomplishments rather than to the calendar.

We are also establishing a Defense Systems Acquisition Review Council. This has just been established in the last 2 weeks—and selected major weapons systems will be looked at at three crucial points over the life of the system. It will be looked at prior to going into contract definition; again prior to going into development; and again prior to going into production.

The Council will be acting for the Secretary of Defense as far as each one of these major programs is concerned. I feel that this will have a very positive effect on the kind of review that you have in mind, sir.

Mr. SIKES. The Congress must necessarily place a great deal of reliance upon military judgment in deciding whether or not to provide funds to proceed with production.

Mr. SHILLITO. Mr. Chairman, a point that does tie into your earlier question, which I think is extremely important, is that the council would expect the service plans and recommendations forwarded for council review will give much greater consideration to parallel development when possible than has been the case prior. Even though it may cost more dollars in the early phase of weapon development, we are inclined to feel it will have a significant impact later in the program.

Mr. SIKES. We have found this year during our hearings that in some instances budgetary considerations—the fear of losing funds or losing the confidence of the Bureau of the Budget or Congress for a particular program—may have been the overriding factor in the Defense Department's decision to go into production in certain cases before it was actually ready to do so. What, if anything, can be done to eliminate this danger or is this just inherent in the system?

Mr. SHILLITO. I think Service overoptimism has been a problem, Mr. Chairman. I do believe that the kind of systematic scrutiny we are talking about by this Council at the Secretary of Defense level of the service recommendations can have a significant, positive impact on attempting to minimize that possible overconfidence.

Mr. SIKES. What has been the moving force in the Pentagon which has been responsible for the tendency of moving into production too early? Is it R.D.T. & E. people, is it the procurement side of the house, the users, the contractors, or the way the contract is written, or a little of all of this?

Mr. SHILLITO. It is possibly a little bit of all these things. The overoptimism on the part of the contractors, the overoptimism in the Department of Defense. We have to realize that the installations and logistics side of the house both in the services and OSD really doesn't come into this picture from a responsibility point of view until we phase into production. We have a significant contribution to make in procurement planning and integrated logistic support is concerned well upstream in the cycle.

It is a little bit of each of these things.

DECISION TO ENTER INTO PRODUCTION

Mr. SIKES. Mr. Secretary, who makes the decision then to enter into production, the R.D.T. & E. side?

Mr. SHILLITO. The point I touched on earlier I would like to come back to—the Defense Systems Acquisition Review Council. When this Council meets, first prior to contract definition, and then prior to full-scale development, it is chaired by the Director, Defense Research and Engineering.

Mr. FLOOD. This is an important question. I am not getting the answer to this.

Mr. SHILLITO. When it is decided to move into production, it is chaired by myself. If we have anything in the way of a disagreement it would then go to the Secretary of Defense for decision. The Council in each instance will be conducting its review of the service recommendations for the Secretary of Defense. It will forward its recommendations to him. The R. & D. man does say when it is ready, by the way.

Mr. FLOOD. During the war we were in England. We needed planes to go over Germany. They spent all their time down here with designs. They came up here to us with a design. The following week up came another design. The following week yet another design. Finally we had to say, "Look, boys, stop playing games with those designers down there. We need planes last night. Throw those designs away."

Now, we have the same problem here with this technological explosion. That goes back to the question they just asked you.

With this technological explosion would the fantastic generations, one down the back of another, who decides when we are going to buy what piece of hardware in that generation? We spend hundreds of millions of dollars for hardware A and then we move up, again the old moth-eaten cliché of the Department of Defense: "If it works, it is obsolete," and then we buy another generation.

Now, who decides at what point somebody has to stop this? R. & D.? D. & E.? You?

Mr. SHILLITO. Congressman Flood, in Defense, as in any new product being manufactured, the recommendation as to when an item is ready to go into production is made by engineering. The decision to accept that item into production, and to tool for that item in production is up to the production man. However, they—engineering—have to say it is engineered and ready to move into production.

Mr. FLOOD. I am chairman of the HEW subcommittee. There is electronics and other hardware. We have the basements of schools all over this country loaded with obsolete hardware that slick city salesmen have sold these school boards and the Government. Now we have the same thing here in Defense.

You say, "Engineering says 'go ahead and buy it,'" but by the time you buy it, the same engineers say, "Wait a minute. It is obsolete. Here is another one."

Then we are right in the middle of procurement and, mister, this costs. Miniaturization.

Mr. SHILLITO. Yes, sir, it does and when you are talking about the timespan with which we are here concerned and when you consider thousands of engineers, each of whom has an area of specialty, you can rest assured that you are going to have new ideas, new concepts, and new costs coming along.

Mr. FLOOD. That just restates the question. That is what I said. Now, at what point do we put airplanes in England?

POSSIBILITY OF DELAYING PRODUCTION DECISION

Mr. SIKES. Mr. Secretary, how serious is the problem of concurrency insofar as time loss is concerned, or additional cost is concerned in those instances with which you are familiar?

Mr. SHILLITO. Mr. Chairman, it is hard to really assess this concurrency impact and its relationship to time.

Mr. SIKES. And you and I know what you are trying to do. You are trying to get new weapons, or equipment, into use as soon as you can.

Mr. SHILLITO. That is correct.

Mr. SIKES. Now, is it worth the gamble in extra cost to do it compared with the loss of time we would suffer if we took a more deliberate pace?

Mr. SHILLITO. Mr. Chairman, it is my position, it is also Mr. Packard's position, that it is worth taking this additional time.

We believe that we will actually end up with the material in operation as soon as we otherwise would, if not sooner, by taking this additional time.

Mr. FLOOD. Mr. Chairman, you are a rifle expert. It took us 7 years, and I heard you year after year for 7 years pound this table and say, "Where are the rifles?" Seven years.

Mr. SIKES. We threw away three or four that were nearly as good as the one they finally wound up with in that time period.

Mr. FLOOD. And when we got it, it was no good. They had to make three changes in the first 3 months in the field in the magazine.

DECISION TO BEGIN PRODUCTION OF F-14

Mr. SIKES. Mr. Secretary, quite often Congress finds itself with little or no options in deciding whether to fund production or to slow down or stretch out a particular development program. The F-14 aircraft development of the Navy is a recent example. In this case, the committee has no apparent flexibility of decision. We are faced with an immediate commitment to production on a brand new development program; however, if the committee chooses to delay production, we are told it will cause a cancellation of the contract. Do you think it is fair to place Congress in such an untenable position? In your opinion, what decision should the committee make in this instance?

Mr. SHILLITO. I would recommend, Mr. Chairman, that the matter be gone over thoroughly with the person who is closest to that particular program; probably the program manager. The F-14 is a very large program. It is a very important program. The program was entered into, contracted with the idea being that the development and production would go to the company that was selected. The times were laid out and the contract does spell out these times. I think the point you make is correct that, were there to be this slippage, it would undoubtedly bring about a completely different contractual environment, but I would prefer not to offer an opinion on it, Mr. Chairman.

Mr. SIKES. If you sat on this side of the table, how would you vote?

Mr. SHILLITO. If I sat on that side of the table, I would ask the same questions, sir. I would look into it as I have suggested.

Mr. SIKES. We have looked into it and, hopefully, we know about as much as can be learned within the limited sphere of our studies and questioning and there seems to be little choice, in view of the requirement for modernization, but that we go ahead. Now, is that the position you would take?

Mr. SHILLITO. Yes, sir.

Mr. MINSHALL. Mr. Secretary, you were with the Navy Department installations and logistics during the development of the well known—

Mr. SHILLITO. The last part of the F-14; yes, sir.

Mr. MINSHALL. And also the TFX program and the F-111B.

Mr. SHILLITO. I pretty much missed the TFX, Mr. Minshall.

Mr. MINSHALL. I thought everybody was in on that.

Mr. SHILLITO. No, sir; that is the reason I tried to stay away from it. They already had enough people in it.

Mr. MINSHALL. You are somewhat familiar with it. You say we should take the advice of the program manager, which we did in that case.

Mr. SHILLITO. I said I would discuss it in detail with the program managers.

Mr. MINSHALL. We discussed it in great detail with them but they said, "We have these problems. We think we can fix this." Then the next thing we know you are over the cliff.

Mr. SHILLITO. I would say this on the F-14, that the contract definition phase which that particular program underwent was undoubtedly as thorough, as complete, as detailed as any other program which the Department of Defense has entered into. I don't profess to be an expert on the F-14, but there was an awful lot of work that went into that contract definition, into that contract and the overall program. I don't suggest this makes it right or good or bad, but a lot of work went into it.

Mr. MINSHALL. But it puts this committee in the position of beginning to have our doubts about what these professional military witnesses tell us from year to year.

That is the point I think Mr. Sikes is trying to get over.

PRODUCTION CONTRACT PRIOR TO FIRST F-14 FLIGHT

Mr. SIKES. On the same subject, to compound matters, the Navy must decide whether or not it will exercise an option for additional production aircraft in September 1970, some 4 months before the first prototype aircraft is flown. How can the Navy make an intelligent decision to go ahead with the production of an aircraft which has not been airborne and fully tested?

Mr. SHILLITO. I don't have the lot numbers we are talking about here before me, Mr. Sikes. Is this lot 3?

Mr. SIKES. Lot 3, 30 aircraft.

Mr. SHILLITO. I don't recall what the benchmarks are that the Navy has advocated—the one they will be looking at as they move through the balance of development. But the position expressed by the Navy is that they will have sufficient information as they move through these developmental benchmarks to make a logical decision as far as going ahead with lot 3.

Mr. SIKES. You don't quarrel with this program, with that phase of the program?

Mr. SHILLITO. Frankly, I don't think I could consider myself sufficiently qualified to say one thing or another with regard to the F-14. I don't consider myself an expert on the F-14. I am impressed with the need for the program and the manner in which it is being managed.

LIMITING CONGRESSIONAL OPTION

Mr. RHODES. Mr. Secretary, why is it necessary, if it is, to enter into contracts like this, such as the one described on the F-14, and I think to some degree on the C-5A, insofar as numbers are concerned at least? Why is it necessary to do these things and preclude Congress from having really any effective voice in the matter?

Mr. SHILLITO. Congressman Rhodes, the chances are, with the F-14, if it were to come along today rather than a year or so ago, it would be contracted for differently. The chances are, we would be talking about the accomplishment of these developmental benchmarks before we make these releases to production. We wouldn't be talking about calendar dates if we were to follow the philosophies we have been advocating for the last several months.

If we can do these kinds of things, it should give you gentlemen, sir, a chance to play a role in seeing what is happening before these production releases are made. This, of course, is something we would like to have done.

CONTRACT TO BUY AT FIXED PRICE AFTER TESTING

Mr. RHODES. I would hope you would work in that direction.

Why is it not possible to compete at the outset a contract which calls for a new development, 1 year of testing, with an option to buy production items at a predetermined price?

Mr. SHILLITO. Full development, 1 year testing with an option to go in with a firm price?

Mr. RHODES. Yes, sir.

Mr. SHILLITO. Theoretically, it would be possible to do that. Practically, we are faced with a time problem that would be, I am inclined to think, rather awkward.

As you wind up development, you do have a capability that is building up in that contractor's organization, both technical and tooling. There are a number of things that would logically cause you to want to use these things as you phase into production, if you can.

Now, in many ways the F-14 people would tell us this is what they are trying to do, even though they are tied to calendar dates, more on the F-14 than we would maybe like to have in some of our major programs.

I should mention too, Congressman Rhodes, we have all possibly had an experience at one time or another where we have had something fully developed and we go through a lot of testing and 9 months or 10 months later we decide we are going to put it into production; but it is surprising the number and kinds of problems you can get into after going into production—and these appear on a fully developed item that you have tested.

Your production engineering, as you move into production initially surfaces various kinds of problems.

Mr. RHODES. That would impinge on the validity of the predetermined price, the point you just made.

COMPLETION OF DEVELOPMENT AND TESTING PRIOR TO PRODUCTION

Mr. FLOOD. To go back to that rifle business again, a perfect case was in the development of that rifle. In the first year we had a better rifle and a cheaper rifle than we wound up with 7 years later and all the other nations of the world bought the one that we didn't take until 6 years later.

Now, if we had Mr. Rhodes' plan in effect, that wouldn't have happened. Why can't we have it in effect tomorrow?

Mr. SHILLITO. Do you mean go through the complete development job and go through all testing and then make the decision to go into production?

Well, one of the biggest problems, I think, Mr. Rhodes, would be a matter of time. We'd like to move in this direction as best we can, depending upon the needs that are dictated to us by the various requirements that we talked about a moment ago.

Mr. RHODES. I sincerely hope you will, for lots of reasons. One, I am sure you will get better products and better control.

The second is just a plain matter of the difficulties in this committee that they are going to have in defending this bill on the floor. If we are to go up there and people have read in the record where it shows we

had absolutely no control over the development of the F-14 and very little over the C-5A, we are on pretty dangerous ground, I think, as far as our own colleagues are concerned.

Mr. FLOOD. Mr. Secretary, you are no stranger in town. You say you just came here. That isn't so. You have been around this town before so don't kid the troops. You know perfectly well that when this bill goes on the floor Mr. Mahon and Mr. Sikes will be down there at that microphone and you will be sitting fat and happy in the balcony.

Mr. SHILLITO. I can't imagine myself feeling fat and happy any more.

REVIEW OF F-14

Mr. SIKES. Will the F-14 be subjected to review by the Council mentioned in your statement?

Mr. SHILLITO. The F-14 is going to receive a lot of top management attention in the Department of Defense and it would virtually end up being that kind of thing; yes, sir. There is no doubt about the fact that the F-14 is going to—

Mr. SIKES. I am not sure you understood my question. Will it be reviewed by the Council?

Mr. SHILLITO. Yes.

PLANS TO IMPROVE COST ESTIMATING

Mr. SIKES. Mr. Secretary, I quite agree with your statement that price estimating for complex weapons systems, taking as long as 5 to 7 years to develop, is not an exact science. Nevertheless, it would seem logical that this problem should have received greater attention in the past than it apparently has. Obviously this problem has been known to the Pentagon and only now has it been brought to the attention of the Congress. Actual costs should not be 200 and 300 percent or more than originally estimated because the cost of labor and material has not increased anywhere near that much in recent years during our booming economy. What steps and changes will be made in the months ahead to improve our cost estimating?

Mr. SHILLITO. One of the critical steps in improving cost estimating is the organization and the procedures involved in initial estimates and in the continuous re-estimating required in managing the program during the span of the overall development and production period. Recently, the Secretary of Defense directed a review of both organization and procedures for accomplishing the management job as related to all or our larger and more important weapons systems. In this connection we will be looking at the financial management aspects of each program office.

In separate but related actions we are studying various ways and means of improving the acquisition process. One concept being explored is the use of more hardware demonstration during concept formulation and contract definition. We do not expect any quick solution to this problem but rather a selective application tailored to fit the requirements of each individual program. Where the cost of competitive prototypes is small in relation to the full scale development cost, we would expect to use competitive prototypes to improve the realism of the source selection process on the one hand and as a vehicle to in-

sure more realistic program cost estimating on the other hand. It may be possible to delay the submittal of the competitive cost proposals for the full scale development contract until after a competitive prototype demonstration has occurred. We would expect the added visibility on the probable system performance to permit more accurate estimating of both the development and production costs.

Another item being seriously considered is to introduce economic analysis into the formulation of the requirements so as to establish an objective unit production cost for the weapons system in the RFP which the contractors would study in relation to the specific requirements for the weapons system. These studies would be expected to result in contractor reports at the end of contract definition which would provide tradeoff analysis of cost versus performance in relation to the individual system requirements which would permit adjustment of the requirement in order to tailor the program more closely to the unit production price established as an objective at the end of concept formulation. Our hope would be to further stimulate at the outset accurate costs on the part of the contractors.

A related effort within the program offices would be to require in every major program the creation of an independent government cost estimate price to contract definition or during the early stages of contract definition, based upon an engineering or mathematical model of the proposed weapon system. This requirement coupled with the requirement for economic analyses to arrive at the unit production boogie for the contractor to study during contract definition would be aimed at more realistic in-house projections which would tend to discourage over-optimism on the part of the services advocating the program. We would expect to require the services to use this independent cost estimates in the evaluation of contract cost proposals during source selection in such a way as to further discourage unrealistic proposals by the competing contractors. Thus far we have visualized the possibility of grading the realism of contractors estimates in relation to how close the contractors estimate matches the Government projection of the program cost. It seems to us that this measure should prove particularly effective where it can be coupled with substantial competitive hardware demonstrations prior to proposal submittals.

The problem of continuous reestimating over the life of the program as requirements change and as new requirements are added relates to the kind of management system which is employed for progress reporting by the contractor to the Department of Defense and within the DOD. We expect to bring to bear management systems which will enable us to identify problem areas sufficiently in advance to permit corrective action to be taken. Among this is the performance measurement system. This system is aimed at significant improvement in the accuracy of estimated cost to completion in relation to increased cost and in achieving a better correlation of cost to technical and schedule performance in relation to previously established targets. This system is being implemented on all new major weapon acquisition projects.

Another approach to the control of program reestimating stems from the recently published DOD standard on the control of changes. We expect to minimize the Government approved engineering changes to the contract which result in changes to target cost and in ceiling

price. Wherever possible we will seek to establish a ceiling for the change prior to directing the work.

Another approach to improved cost estimating which relates to both initial estimates and program reestimates is aimed at the avoidance of oversophistication and overdesign. There is evidence that we sometimes design and build weapon systems that are too complex and therefore are too costly both to produce and operate. Again this problem is further compounded by trying to produce hardware before it is fully developed. The transition from development to production often results in problems which should be solved during the development stage. Except for programs of extreme urgency, production will not be initiated until major uncertainties have been eliminated. We expect to give effect to this policy by the use of a series of meaningful development milestones, contractually defined prior to the start of the program which shall be accomplished before exercising options or placing orders for production. In our view, if we can assure the development of a reliable weapon before it is released to production, our ability to forecast production costs will be substantially improved.

Finally, to improve cost estimating we are exploring the introduction of improved techniques of economic analysis into our traditional pricing methods. We do not expect any immediate improvement as a result of this effort, however, we do expect to identify a number of areas for academic research into improved forecasting techniques. This latter activity is aimed at a long-range improvement in estimating weapon acquisition costs.

COST OVERRUNS ONLY ON MAJOR PROCUREMENTS

Mr. SIKES. Under cost overruns, your statement indicates there are virtually no problems with the vast majority of the individual procurements placed annually but that there are severe problems, however, with a fraction of the total procurements placed. Is that what you meant to say?

Mr. SHILLITO. That fraction, Mr. Chairman, by the way, represents a significant number of dollars. I want to be sure that I haven't misled you there in any way. It is a fraction of the individual major contracts placed, yes, sir.

Mr. SIKES. That is the point I wanted to get at. This does constitute a major portion of defense dollars?

Mr. SHILLITO. Yes, sir.

COST OF DEVELOPMENT AND PROCUREMENT OF MAJOR WEAPONS SYSTEMS

Mr. SIKES. Can you tell us what percentage of our defense dollars support the development and procurement of major weapons systems? You may have to provide that for the record.

Mr. SHILLITO. I think we should provide that for the record.
(The information follows:)

In order to be completely responsive to the question, we are attaching two excerpts from the DOD publication, "Military prime contract awards and sub-contract payments or commitments". One of these excerpts entitled "awards by procurement program, by Department (by fiscal year)," shows for fiscal year 1968, the breakdown of the \$89.5 billion procurement program by "major hard goods," "services," and "all other." We are also inclosing a separate table showing a portion of the total program devoted to research, development, test and evaluation. In our view, "major weapon systems" would include aircraft, missiles, and space systems, ships and possibly some tank-automotive, weapons and electronic items.

In the fiscal year 1970 program request for DOD military functions (excluding MAP) of \$79.6 billion, we estimate that \$18.5 billion or 23 percent is for development and production of major weapons systems. This includes the amount in the procurement appropriations which are authorized under section 412(b) and R.D.T. & E. amounts for engineering development, operational systems development, and part of advanced development.

TABLE 6a.—AWARDS BY PROCUREMENT PROGRAM, BY DEPARTMENT (BY FISCAL YEAR)¹

[In thousands of dollars]

Major program	Fiscal year 1967					Fiscal year 1968				
	Total	Army	Navy	Air Force	Defense Supply Agency	Total	Army	Navy	Air Force	Defense Supply Agency
All business firms for work in the United States.....	\$39,809,015	\$10,954,664	\$12,209,786	\$10,988,972	\$5,655,593	\$39,486,618	\$11,820,765	\$12,068,337	\$10,844,895	\$4,752,571
Major hard goods (subtotal).....	25,826,781	7,746,589	9,542,206	8,281,821	256,165	26,479,732	8,932,870	9,090,621	8,211,212	245,029
Aircraft.....	9,677,030	1,337,456	3,873,420	4,445,056	21,098	9,470,027	1,501,384	3,417,167	4,525,601	25,875
Missile and space systems.....	4,333,350	968,206	1,145,487	2,213,237	6,420	4,732,136	1,169,133	1,391,501	2,170,088	1,414
Ships.....	2,047,667	38,333	1,968,859	315	40,160	1,942,847	11,012	1,891,311	403	40,121
Tank, automotive.....	1,438,190	1,378,357	16,685	30,786	12,362	1,431,649	1,353,508	27,248	36,510	14,383
Weapons.....	616,941	424,696	150,447	41,717	81	663,058	510,114	114,964	37,836	144
Ammunition.....	3,553,878	2,493,351	730,109	309,159	21,259	4,513,282	3,289,388	848,936	321,154	53,804
Electronics and communications equipment.....	4,159,725	1,106,190	1,657,199	1,241,551	154,785	3,726,733	1,098,331	1,399,494	1,119,620	109,288
Services.....	2,950,250	827,181	961,143	1,147,010	14,916	3,234,257	747,662	1,281,776	1,199,866	4,953
All other (subtotal).....	11,031,984	2,380,894	1,706,437	1,560,141	5,384,512	9,772,629	2,140,233	1,695,990	1,433,817	4,502,589
Subsistence.....	1,124,941	82,506	13,633	87,998	940,804	1,071,739	76,164	19,064	103,811	872,700
Textiles, clothing and equipage.....	1,141,048	21,972	20,333	26,837	1,071,906	719,582	34,868	16,138	20,000	648,576
Fuels and lubricants.....	1,058,585	10,274	754	1,386	1,046,171	1,154,083	3,677	2,887	1,721	1,145,798
Miscellaneous hard goods.....	2,670,546	627,321	247,405	379,575	1,416,245	2,133,087	509,036	220,870	326,019	1,077,162
Construction.....	1,184,584	693,268	358,287	129,644	3,385	1,261,650	675,072	452,168	133,460	950
All actions of less than \$10,000.....	3,852,280	945,553	1,066,025	934,701	906,001	3,432,488	841,416	984,863	848,806	757,403

TABLE 8.—AWARDS FOR RESEARCH, DEVELOPMENT, TEST, AND EVALUATION WORK, BY PROCUREMENT PROGRAM¹

[Dollar amounts in thousands]

Major program	Amount					Percent of all awards in each category				
	Fiscal year 1964	Fiscal year 1965	Fiscal year 1966	Fiscal year 1967	Fiscal year 1968	Fiscal year 1964	Fiscal year 1965	Fiscal year 1966	Fiscal year 1967	Fiscal year 1968
Total.....	\$5,832,497	\$4,790,836	\$5,355,689	\$6,095,617	\$6,531,501	20.3	17.1	14.0	13.7	14.9
Intragovernmental.....	40,630	26,743	25,305	12,788	19,373	7.2	4.4	2.5	1.0	2.0
For work outside United States.....	25,288	38,291	52,953	67,466	75,689	1.9	2.8	2.1	2.4	3.0
Total, except intragovernmental and for work outside United States.....	5,766,579	4,725,802	5,277,431	6,015,363	6,436,439	21.4	18.2	15.2	14.5	16.0
Educational and nonprofit institutions.....	621,754	656,344	598,376	643,474	658,474	90.4	89.0	89.0	85.1	85.3
Business firms for work in the United States (subtotal).....	5,144,825	4,069,458	4,679,055	5,371,889	5,777,965	19.6	16.1	13.8	13.5	14.6
Major hard goods (subtotal).....	4,681,300	3,570,997	4,090,312	4,804,275	5,148,210	26.5	21.8	19.1	18.6	19.4
Aircraft.....	640,948	717,434	705,329	938,964	1,045,101	10.6	12.4	9.4	9.7	11.0
Missile and space systems.....	3,111,946	2,051,526	2,339,704	2,740,719	3,071,331	55.8	48.5	56.7	63.2	64.9
Ships.....	141,504	59,305	72,685	114,011	95,562	9.5	3.5	5.5	5.6	4.9
Tank-automotive.....	22,477	27,533	47,059	50,162	49,482	3.0	3.2	3.0	3.5	3.5
Weapons.....	39,593	38,569	57,447	73,193	55,570	18.7	12.9	11.5	11.9	8.4
Ammunition.....	76,319	53,545	123,176	84,655	106,731	11.6	7.1	4.4	2.4	2.4
Electronics and communications equipment.....	648,513	623,085	744,912	802,571	724,433	22.2	22.4	20.7	19.3	19.4
Services.....	409,743	438,245	508,610	489,613	559,888	22.8	25.2	22.2	16.6	17.3
Other (subtotal).....	53,782	60,216	80,133	78,001	69,867	.8	.8	.8	.7	.7
Subsistence.....	552	782	560	206	152	.1	.1	.1	(²)	(²)
Textiles, clothing, and equipage.....	1,058	2,582	3,991	2,784	3,040	.4	.7	.3	.2	0.4
Fuels and lubricants.....	1,318	1,007	799	161	141	.2	.1	.1	(²)	(²)
Miscellaneous hard goods.....	31,492	25,068	41,913	45,231	36,321	3.0	2.2	1.6	1.7	1.7
Construction.....	1,378	3,085	3,461	2,860	5,434	.1	.2	.3	.2	.4
All actions of less than \$10,000.....	17,984	27,692	29,409	26,759	24,779	.7	1.0	.8	.7	.7

¹ For definitions and coverage, see notes on coverage.² Less than 0.05 percent.

NAVY SHIPBUILDING AND CONVERSION COST OVERRUNS

Mr. SIKES. In the last couple of years the Navy has experienced significant cost increases in its shipbuilding and conversion program. In your former capacity as Assistant Secretary of the Navy for Installations and Logistics, when were these matters brought to your attention by the military?

Mr. SHILLITO. Mr. Chairman, I first found myself getting concerned about this in about—I may have to supply you this for the record too—about September of last year, as I recall, on one major program that we found ourselves getting into.

Mr. SIKES. Will you tell us now, or for the record, what actions you initiated after you became aware of these costs increases in the shipbuilding program?

Mr. SHILLITO. Yes, sir. We kicked off an in-house study on our overall shipbuilding operations about that time or a little bit before that time. We initiated a study on the destroyer escort costs and these studies, of course, have played a role in bringing about the overall look that has been taken at our shipbuilding costs. I shall supply you the details as best I can on these for the record.

(The information follows:)

The subject of cost overruns is many faceted. It involves such items as cost estimating, cost escalations (that is, labor rates, material costs, et cetera), contractor claims, contract changes (both adjudicated and unadjudicated), et cetera. During my tenure as Assistant Secretary of Navy (Installations and Logistics), concern in this overall area of escalating shipbuilding costs initially focused on cost estimating procedures, and subsequently on contractor claims.

In May 1968, I advised the Secretary of the Navy that one of my major concerns in fulfilling my responsibilities as Assistant Secretary of the Navy (Installations and Logistics), and one which I intended to closely examine, was the problem of cost estimating (both commercial and Navy) and apparent cost escalation in our shipbuilding programs. In attempting to collect data on the subject, I advised that I would be visiting naval and commercial shipyards.

In June 1968, I received initial briefings on Navy cost estimating procedures. Impressions I gained from these briefings were that the cost estimating procedures were fairly sound, but that poor communications and consequent misunderstanding throughout the planning, program, budgeting system had resulted in a lack of credibility in the accuracy of ship cost estimating. This observation was reported to the Secretary of the Navy along with the notification that a steering group had been established, headed up by the Deputy Chief of Naval Material (Logistics), Rear Admiral Sonenshein, to direct a study of pricing and cost control procedures.

In August 1968, cost escalation resulting from significant contractor claims was noted, particularly in the case of destroyer escorts. At this time, an SON review of the status of that appropriation was begun. This review identified substantial SON funding deficiencies and certain proposed actions to correct such deficiencies. However, the study did not address potential contractor claims which might arise. The matter was a subject of discussions between Assistant Secretary of Navy Bowsher and myself.

On August 22, 1968, I reviewed the matter of cost estimating and cost control with Vice Admiral Colwell, Office of Chief of Naval Operations, at which time we agreed that the problem was more one of procedure and management than improved pricing. The problem of price change between budget submission and contract date was discussed, as well as control of configuration and engineering changes which impact on price escalation. It was agreed that cost estimating procedures should be clearly centralized, and all concerned in reviewing such pricing within OSD and Navy be familiarized with the parameters and procedures involved. A briefing by representatives of the Center for Naval Analysis, following a study of cost estimating procedures, showed weaknesses in the planning, programming, budget process, but that estimating pricing procedures were fairly accurate.

In September 1968, Assistant Secretary Bowsher initiated an inquiry into the general area of costs under current shipbuilding contracts. The results were reviewed by Mr. Bowsher and myself, and were discussed with the Under Secretary of the Navy. Following further discussion with naval officials and visits to commercial shipyards which confirmed my concerns, I informally expressed my concerns again to various senior persons in the Navy and issued a memorandum on December 3, 1968, to the Chief of Naval Operations advising as to the shipbuilding industry's trend toward submission of large claims against the Government, and asked that the validity of these claims be established and a more detailed examination of further potential claims be identified. On January 10, 1969, in response to my memorandum, the Deputy Chief of Naval Operations (readiness) sent me an interim report as to the extent of claims, actual and potential. A complete report relative to the extent of claims as a result of these efforts was presented to the Secretary of Defense by the Navy on March 7, 1969.

During the Senate Armed Services Committee hearings on my confirmation as Assistant Secretary of Defense (installations and logistics), I acknowledged the cost overrun problem, and expressed my intent to try my very best to do something about these overruns.

Admiral Sonenshein's pricing and cost control study was completed in April 1969.

The study concluded that shipbuilding price estimating procedures were fairly sound and not the root cause for overruns; time-related problems were noted as major contributions to cost overruns; that is, the long pricing and planning period preceding the budget submission and the long program cost control period following the budget submission. The study recommended earlier decisionmaking and improved control over characteristic changes, and developed a design to effectively control actions and decisions during the long period of shipbuilding programs.

SHIPBUILDING, CONVERSION, AND OVERHAUL PROGRAMS

Mr. SIKES. I notice in your statement today, in your item 4, page 5, you speak of shipbuilding, conversion, and overhaul programs. I was a little bit surprised to see this in your statement. Now, what is there that your office can and should do in the field of shipbuilding, conversion, and overhaul? Isn't this more directly a Navy responsibility?

Mr. SHILLITO. The only point that is being made here is that this is a significant piece of our overall budget. It has presented many problems and is of particular interest to the Secretary of Defense. We plan to stay close to this situation as the problem gets resolved.

Mr. SIKES. This is a very serious problem and one of the most serious that confronts the Department of Defense. Modernization and conversion costs have gone right through the ceiling and yet these are essential areas.

Mr. SHILLITO. Yes, sir.

Mr. SIKES. What can you tell the committee that offers promise in this field?

Mr. SHILLITO. Here again is a case where my personal opinion is that we move into a number of these programs with the architectural work incomplete, with the specifications incomplete, with the designing incomplete, and we kick off a number of these programs on a production basis, giving production commitments with the development incomplete.

I will complete this for the record.

(The information follows:)

SHIPBUILDING, CONVERSION, AND OVERHAUL PROGRAMS

We consider this area so important that we have designated the shipbuilding, conversion, and overhaul programs as one of our key objectives for prime attention.

It is necessary to develop more realistic long-range plans, establish sound cost estimating techniques, improve workload planning, prepare realistic ship schedules, develop more effective acquisition procedures and reorient cost control procedures. Credible long-range programs are also necessary to establish stability in the shipbuilding program in an effort to encourage shipbuilders to invest private capital in modernizing their yards. Consideration will also be given to advance materiel requirements information as related to shipbuilding in order to allow DSA to do an adequate planning job.

This priority area must be carried out primarily by the Navy Ship Systems Command. It is of sufficient import, however, to require that OSD attention be given to insure its satisfactory conduct. While concern as regards this program has been expressed repeatedly over the past year, it warrants significant additional attention.

The following actions are now underway:

1. Feasibility of the Navy's long-range (shipbuilding-conversion Navy) SCN program is being reviewed with regard to the shipbuilding industry's capabilities and required modernization.

2. A pricing and cost control study is now in the process of being completed by the Navy. This should lead to various recommendations as to additional actions required.

3. A comprehensive financial review of the total shipbuilding program has been directed by ASD (C).

4. For many months, the Navy has been studying the increased trend in ship claims by shipbuilders. They have just recently released the extent of the claims identified and the nature of such claims. They are also developing data as to the reasons behind such claims.

5. Improved management planning for ship overhaul has been developing. Indications are that such improvement will be reflected in the overhaul of the U.S.S. *Saratoga* and U.S.S. *Roosevelt*.

6. The 10-year Navy shipyard modernization program will begin as soon as requested fiscal year 1970 funds are appropriated.

In order to insure the satisfactory pulling together of the total shipbuilding environment, including costs, construction, alterations, conversions and overhaul, top management's continued attention is necessary. To achieve this end result, certain organizational changes are being considered.

COST OVERRUNS FROM GOVERNMENT CHANGES

Mr. SIKES. You have mentioned Government changes which result in specific deficiencies or initial overoptimism on the part of the contractor or the Department of Defense. Government changes certainly contribute materially to the cost overrun problem. Almost every Navy shipbuilding program suffered from Government changes. In one class of destroyer escort construction, for example, the Navy admitted to being responsible for about 125 construction changes, most of which were concerned with the operation, habitability, and other aspects of the ship as well as changes in the design of Government-furnished equipment, either this does not speak well for the ability of the Navy to design ships or else little attention is being given to the impact of Government changes on shipbuilding cost, or both. What are your views on this problem?

Mr. SHULLRO. I can only assure you of this, sir, that attention has been given by Navy to get on top of the overall configuration control situation as far as ships are concerned. They have gone to great expense to bring about an improved change control environment. We are going to start feeling the effects of this with a little time. But again, this is the kind of thing that just does not happen quickly. This

has been a problem. It has been recognized. It is being studied thoroughly by the Navy. Their studies are leading to sound recommendations for improvement in design development and production.

Mr. SIKES. Do you see a possibility that this problem will repeat itself?

Mr. SHILLITO. I find as I get older that making categorical statements is something I sort of steer away from.

At any rate, we are knocking ourselves out to stay on top of this; to attempt to insure that it does not repeat itself.

Mr. SIKES. How would it happen that a department of the Government which is in the shipbuilding and operation business would be caught in the position of having made 125 changes in a construction program?

Mr. SHILLITO. The technical program, which I think you are referring to, is the destroyer escort program. The initial contract for that program, as I recall it, was entered into before the design and architectural work were completed. Without having these kinds of things tied down there is always the possibility of cost increases, of the need for increased changes, once you have started production. This certainly had a lot to do with it. It ties back into Mr. Rhodes' earlier point. Had this architectural work and the engineering work and the specifications been completed prior to moving into the production contract, a significant portion of this could have been avoided.

REVIEW OF COST GROWTH ON COMPLETED CONTRACTS

Mr. SIKES. In addition to the efforts of the newly established Major Weapons System Review Council which will review ongoing and future developments, you speak of a review of completed contracts involving both development and production in the interest of developing cost growth information. Is this an in-house effort or will it be done under contract?

Mr. SHILLITO. It is an in-house effort.

Mr. SIKES. Do you have adequate staff for it?

Mr. SHILLITO. I would ask Mr. Malloy. I think we are sufficiently staffed.

Mr. MALLOY. I would say so, with respect to the part we are working on, Mr. Chairman. The Director of Defense Research and Engineering, Dr. Foster, also has an effort along these lines—he is going to use some outside assistance from a contractor, I believe, the Rand Corp.

COMPETITIVE DEVELOPMENT

Mr. SIKES. You also mention the probability of doing more in the way of competitive development. This certainly appears to have considerable merit in certain types of weapons systems. I believe the F-4 Phantom fighter aircraft is a good example on the prototype development. Give the committee some idea at this time how this decision will be made and provide examples of the types of weapons systems for which it is feasible to enter into a competitive prototype development.

Mr. SHILLITO. Mr. Chairman, the complete details have really not been spelled out. In fact, I am not sure that they can be spelled out in a fashion that will be go-no-go in nature. We will be developing our

overall acquisition procedures to allow for decisions to efficiently and effectively be made as to when we go into dual development. The development concept papers will highlight these things. The Major Weapons Systems Acquisition Review Council will be looking at these kinds of things too. We are possibly going to find that on a number of major weapons systems it is economically illogical to think in terms of competitively developing a prototype of the entire major weapons system.

However, we do plan to think in terms of looking at those pieces of a major weapons system that involve the more consequential unknowns—pulling those pieces out of the major weapons system—and running dual developments on those pieces. This would permit us to furnish them as either GFAE items or to conceivably authorize dual development on some of these unknown areas other than through the major prime contractor.

Now, again, all the details as to how we are going to do this have not been fully laid out but we do have established review procedures; such as the development concept paper. As it is updated, decisions will be made on these situations. I would again emphasize that the sound implementation of all these procedures will be the responsibility of the services.

Mr. SIKES. What role will the Bureau of the Budget play in the decision to move a weapons system development into production?

Mr. SHILLITO. I don't know of any status review role they will play, Mr. Chairman.

LEGISLATION TO IMPROVE PROCUREMENT PROCEDURES

Mr. SIKES. Under the military-industrial complex, we must rely on industry to support our needs and to work closely with our defense establishment in order to maintain a strong national defense. You have explained that through GAO, the Congress, the defense auditors and the existing Federal statutes, you believe we have the checks and balances necessary to preclude unwarranted influence if we remain on our guard. Do you believe there is anything else the Defense Department or the Congress can do or needs to do to increase or bolster our guard against any unwarranted influence? For example, is additional legislation necessary or should GAO be tasked to increase its vigilance in this area?

Mr. SHILLITO. I would ask whether Mr. Malloy has any comment to offer on the question. My offhand reaction, Mr. Chairman, is that we probably have all the legislation we need right now.

I believe that our standards of conduct have been thoroughly spelled out. I think that we do have to maintain an arm's-length relationship particularly in the contractual environment with industry. This we attempt to do. At the same time, we must of necessity contact these people as we develop the solutions to our problems. In the final analysis the end product will come from industry. But I don't know that we need anything more in the way of controls or legislation.

Mr. MALLOY. Mr. Chairman, I agree with the Secretary. I know of no additional legislation that is necessary at the present time. The GAO review activity is pretty intense.

REPORTS TO CONGRESS

I would suggest one area that might be quite helpful to this committee and to the Congress as a whole. That is, the possibility of increasing the flow of information, particularly on major programs, to the Congress. That is a point that the Secretary made in his statement. It seems to me that some of our present difficulties may be attributed to that single factor. As you know we feel there is nothing to be hidden whatsoever with respect to the status of any of these programs.

Mr. SIKES. Specifically, what type of information, Mr. Malloy?

Mr. MALLOY. I would say, sir, and with respect to an ongoing program, an oral or written report of the status of the program at periodic intervals. Let's say 6 months intervals or 12 months intervals with an assessment of any difficulties that might be apparent in the program at that point; any slippages, either schedule or cost; and the best information we have as to what the program is going to cost at completion.

Mr. SIKES. Would this interpose any significant problems to the Department, Mr. Malloy, from the standpoint of time requirements and the cost involved?

Mr. MALLOY. I think this will present two quite significant problems to the Department, as well as to the Congress. One will be the time element. These are very complex programs and information needs to be studied quite precisely.

The second problem I think that is inherent in doing this is that it is extremely difficult to understand the nature of the changes in a program as it flows. Therefore it becomes extremely difficult to take, for example, a given beginning figure on any program and compare it with an ending figure.

As you gentlemen particularly know, since you review these major programs, the same ones year in and year out, you know that quite frequently major breakthroughs are made technologically, or other changes have to be made that have an impact on the total program cost. If one does not understand these situations, you could draw the wrong conclusions.

Mr. SHILLITO. By the way, Mr. Chairman, Secretary Laird has made it very clear that he intends to insure that this kind of information does get to the Congress. Our plans right now hopefully are to shoot for something around quarterly on reporting our major programs.

Mr. LIPSCOMB. What exactly are you talking about that is different? Is it the reporting quarterly part of it? By reporting to Congress do you mean sending a document up to the Speaker of the House and the President of the Senate or do you mean reporting to the committees of the Congress? Just what are you discussing here?

Mr. SHILLITO. As far as I am concerned, I would be talking about more detailed information on the status of these particular programs that would get to these committees that have the responsibility—

Mr. LIPSCOMB. Are you saying now this committee hasn't in recent years been reported to in as much detail as the Department of Defense possibly could have reported?

Mr. SHILLITO. I have been left with the impression that this committee would have liked to have had more current status on some of the major weapons systems and the problems that we find ourselves faced with as far as some of these major weapons systems are concerned.

Mr. FLOOD. You have no hesitation in coming to us for reprogramming every other weekend if it suits your fancy. Why would you come to us quarterly on a major change and a major breakthrough on a major weapons system? Why would you hesitate? There is ample precedent.

Mr. LIPSCOMB. For instance, on the C-5A, and shipbuilding, are you implying at this point that this committee didn't get adequate information in the past?

Mr. SHILLITO. I don't want to suggest that, Mr. Lipscomb. I am not quite sure just what information was passed on to the committee on the C-5A, but I don't think it was quarterly. I think if you received an annual look it would be discussed in some detail. We do have a handful of major programs that involve a significant portion of our dollars and the point that is touched on by Mr. Malloy, and as touched on by myself here, is that everything and anything we can give this committee relative to the status of these programs we intended to give you. It is as simple as that. We do have 32 programs that we have been asked to give data on to Senator Stennis. We expect that we will go beyond the 32. I mentioned a little while ago that Secretary Laird has made it very clear that we are going to look at anything and everything that is in process of development and production to find whether we are incurring costs that had not been previously anticipated. We will be doing just that, possibly supplementing these 32. That is the kind of information we are talking about.

There has been no specific format designed for this. We have a system acquisition report that is maintained by our Comptroller and it probably would be similar to that.

PLANNED IMPROVEMENTS IN REPORTING

Mr. LIPSCOMB. For example, the C-5A cost overruns came from a variety of causes. What is going to happen now that is different so the Department of Defense will be up to date on those cost overruns, either monthly, quarterly, or whatever time frame you are talking about?

We have watched the C-5A develop here in this committee and although we knew it was not on schedule and that the costs were running a little higher, the magnitude of the cost overruns came as a surprise. It appears that they came as a surprise to the Department of Defense.

What changes are going to be made so you can keep us better informed?

Mr. SHILLITO. There are two changes, Congressman Lipscomb. One relates to time. In other words status information earlier. Whether you are talking about C-5A or any other major acquisition. The whole look concerning the C-5A and its cost growth, would have been examined at some point.

Thus one thing we are talking about is time. I would hope information could be supplied more systematically and second, we do have a defense directive called 7,002—I am not quite sure of the exact number, but I think that is correct, and this is our CSPD—Cost Schedule Performance Directive—that we are just in the process of implementing. It involves detailed, continuous review of cost schedule and performance on major programs by these contractors. We hope that information will be more current than it has been historically on these

major programs. This is all we are shooting for—earlier, more meaningful information than has been available before.

COST GROWTH VERSUS COST OVERRUN

Mr. FLOOD. I direct your attention to page 9. You will remember, Mr. Mahon asked you in the warmup period before the curtain went up—we are talking about different things here. This is a question of semantics now. Let's be sure that we both mean—let me quote this:

Now, this is what you say:

Before we go further into this problem, I would like to first attempt to define "overruns." In fact, I would like not to refer to this problem as overruns.

Now, we are talking about two different things.

But throughout the balance of our discussion, refer to it as "cost growth" in that I believe a very small percentage of the total cost growth can be defined as overruns.

Mr. SHILLITO. Yes, sir; that is correct.

Mr. FLOOD. That is what you said. I am quoting you.

We are using the term "overruns" interchangeably with "cost growth." At least on this side of the table. We have been doing it all day. What do you want to tell us? You don't want to do that. Which is which? Which comes first, the chicken or the egg?

Mr. SHILLITO. I don't care what you call it, Mr. Flood.

Mr. FLOOD. Oh, yes, you do; you wanted to call it "cost growth."

Mr. SHILLITO. I would prefer to call it "cost growth." But whatever you call it, we are talking about a situation where we end up with a significantly higher number than we thought it would be initially.

Mr. FLOOD. That is right, and you don't want to call it "overrun."

Mr. SHILLITO. A lot of this growth is caused after much conscientious thinking and decisionmaking on the part of many responsible people. Changes are adopted which make sense and which appear to be necessary. This is a part of this overall growth.

Mr. FLOOD. Here is a figure. I say "Mr. Secretary, that is an overrun." You say, "Oh, no, Flood, that is no overrun; that is cost growth." How can I tell which hat you are wearing?

Mr. SHILLITO. If I am going to build a seven-room house and I am going to pay \$50,000 for it, let's assume I add another room and now it is going to be \$55,000. That is growth. But if the \$50,000 house as originally planned is now going to cost \$55,000—that is an overrun.

Mr. FLOOD. Well, what about that, gentlemen?

Mr. SIKES. All right, gentlemen, I suggest that we resume the hearing at 2 o'clock tomorrow afternoon.

THURSDAY, JUNE 19, 1969.

EMPLOYMENT OF RETIRED MILITARY BY DEFENSE CONTRACTORS.

Mr. FLOOD. The committee will come to order.

Now, Mr. Secretary, before we adjourned yesterday afternoon, we were discussing the military-industrial complex. Mr. Secretary, your statement indicates there has not been an abnormal increase in the numbers of retired military going to work for industry. I would like to explore this matter with you in greater detail. First of all, what do you

consider to be an "abnormal increase"? That is supposed to be your phrase.

Second, is there a danger that we should guard against?

Mr. SHILLITO. First of all, Mr. Chairman, possibly my statement is not as clear as it should be. There has been an increase unquestionably.

Mr. FLOOD. Has that been progressive down through *x* years or what?

Mr. SHILLITO. From 1959, which is when I think this committee asked for the numbers last.

Mr. FLOOD. That is right.

Mr. SHILLITO. And in 1959 there were 767 retired captains, colonels, and above who were working for the top 100 contractors.

In 1968 there are roughly 2,100 and I will give you the exact number that are receiving military retirement pay and are now working for the top 100 contractors.

The contractors reported a total of 2,135 officers. Sixty-seven have been deleted because they held lower ranks or were not retired and receiving military retirement pay. We have confirmed that there are 1,632 retired Regulars and 182 retired reservists employed by the top 100 firms. We are having some difficulty confirming the rank and status of the remaining 254 officers. This is partly due to incomplete or misspelled names and to the fact that many officers have identical names. Including these 254 officers, the total now stands at 2,068. This figure might be lower when our check is completed.

Mr. FLOOD. Is that a lot?

Mr. SHILLITO. This is roughly a 170-percent increase.

Mr. FLOOD. Even though it is a 170-percent increase, do you think it is a lot? Suppose somebody asked me "Is that a lot, Mr. Flood?" What am I going to say?

Mr. SHILLITO. I don't think it is a lot, considering the kind of percentage of the total contractors' employment you are looking at; 0.0003 percent of the total employment. It is well controlled.

Mr. FLOOD. What do you mean "well controlled"? How can you control it?

Mr. SHILLITO. What they can do and what they can't do.

The legislation, the directives they have to comply with in going to work for a contractor are very explicit. I should also point out that there are many of these retired officers that are employed by the major defense contractors exclusively in their commercial operations. Others are engaged only indirectly in defense work; such as pilots, physicians, plant security officers and in personnel or other employee service activities. There are limitations on their defense sales and marketing activities.

Mr. FLOOD. You are saying if it wasn't for the action of Congress, if it wasn't for the directives taken by the Department, there would be a lot more of these people taking these jobs?

Mr. SHILLITO. I can't come to that conclusion. There might be more.

Mr. FLOOD. It is a good guess?

Mr. SHILLITO. There might be more. It is a good guess.

You see, the conclusion has been reached that there has been this abnormal growth since 1959 and again if you look at the sales increase of these companies, mergers and acquisitions, the numbers of employees increasing in the companies, the number in the base having

gone from around 19,000 in 1959, retired captains and colonels, to now 37,000 or 38,000—38,000 in 1968-69, all these things would lead you to the conclusion that there has not been an abnormal increase.

Mr. FLOOD. Is there a danger that we must guard against or should guard against?

Mr. SHILLITO. I think the concern, as expressed in President Eisenhower's speech of January 17, 1961, is sound. I think that you people in Congress, we people in Defense, have conscientiously and are conscientiously attempting to guard against any kind of improper relationships between the retired man and our people in the Department of Defense.

Mr. FLOOD. Is this thing a Frankenstein as of today?

Mr. SHILLITO. I do not feel that way at all, sir, no, I do not.

Mr. FLOOD. This is a very sore point, you know.

Mr. SHILLITO. And we are very concerned about this point. It is something that bothers us very much and I am inclined to think that the average defense contractor—in fact, I'd venture to say those we find ourselves talking to; they are not a bit enthusiastic about hiring our military people. The shy away from this very much.

PROBLEM OF EARLY RETIREMENT

By the way, Mr. Chairman, you know we have another problem in this environment that ties into this and that is our retirement problem. This is not a logistics problem. Here is a man who is 42, 43 years old, who has many years to work.

Mr. FLOOD. And he has 20 years in.

Mr. SHILLITO. And he has 20 years in and is on the verge of retiring, or can retire, and he has children that have to be supported. He has been deeply involved, become an outstanding professional, say, in an area of specialization that has application to a number of the kind of things that some of our Defense contractors do, be it in their commercial business or in their defense business, and it is rather logical that he be attracted to some of these kinds of companies.

Conceivably something should be done about concerning ourselves with changing our retirement policies. Something should be done about retaining the competency of this man in defense or in Government and avoiding this problem.

Mr. FLOOD. On the other side of the coin, there is always the frailty of humans, you know.

Mr. SHILLITO. Yes, sir.

POSSIBILITY OF CONFLICT OF INTEREST

Mr. FLOOD. Is this good or bad, from the standpoint of conflict of interest, to have retired people enter industry? Is it a good thing or a bad thing—looking toward conflict of interest—to have these people entering industry? Should we shut them out?

Mr. SHILLITO. As far as I am concerned, Mr. Chairman—

Mr. FLOOD. If you were a Member of Congress and I introduced a bill to cut them out, would you vote for it?

Mr. SHILLITO. No, sir; I would not. I think it would be involving ourselves in an individual's need to make a living in a way that

I would find myself questioning. I don't think that it would be right that we should shut them out from possible employment, possible gainful employment in the right kind of circumstances with whatever the company or whoever the company might be as long as this individual were not in any way involved in improper relationships.

Mr. FLOOD. Then in itself it is not bad, you say?

Mr. SHILLITO. I don't think so.

Mr. FLOOD. Do you think there have been any instances of conflict of interest where this very situation was present that we are talking about?

Mr. SHILLITO. I wouldn't want to make a categorical statement on this. When we are looking at something as large as the defense industry, I would suspect there could be relationships that are not completely proper. But I think that we have adequate tools at our disposal, our directives and procedures. The way these people are looked at and the controls that are exercised with regard to them, I think minimizes the problem. The subject has received considerable attention.

STUDY OF RETIREES WORKING FOR DEFENSE CONTRACTORS

Mr. FLOOD. Would you do this: First, has anybody in your shop, or any place in that area in the Pentagon, ever made any—you always have a task force making analyses of this, that and the other thing. Now, this is a red hot subject. It is a sore point. It has been for a number of years. We worried about it 10 years ago. Now, have you fellows downtown ever set up a task force, an investigation, to take a look at that? If you have, will you put in the record first, did you, and if you did, what results, if any, did you find, on that one question?

Mr. SHILLITO. Other than the solicitation of industry asking for the names and the ranks and the jobs and so forth of all the senior retired military people who work for the top 100 contractors, I can think of no other detailed analysis. Can you, Mr. Malloy?

Mr. MALLOY. Mr. Chairman, last year prior to Secretary Shillito taking his present position, we did make a survey of the governing Department of Defense rules on this general subject and we could provide the conclusions of that study for you.

Mr. FLOOD. We are not interested. My question has nothing to do with the rules. First of all, you have made a study of the rules.

Mr. MALLOY. Yes.

Mr. FLOOD. Did you find any characters who, in your opinion, were patently and obviously and clearly guilty of conflict of interest?

Mr. MALLOY. We did not, Mr. Chairman. We weren't really looking at individuals during that survey but we did conclude some months ago that our basic procedures were sound, although there were some suggested changes that were made in these procedures.

Mr. FLOOD. Now they are talking about the judiciary being guilty of conflict of interest and there is a great deal of turmoil about that. The same thing is being leveled against Congress. Congress hasn't done enough or should do more in the Senate and the House and you have been reading all that in the past few months up until this morning.

All right, you are no better than we are. Now, we would like you to take a look and we'd like you to unmask any such instances.

Mr. SHILLITO. Mr. Chairman, I would like to make a suggestion. I know that Mr. Froehilke is going to be up here. I think in the investigative side of our operations this is an area that should be brought up with him too. I realize he has been on the job a very short time and I will discuss it with him.

Mr. FLOOD. Both of you cry on each other's shoulder. Both of you do it.

Mr. SHILLITO. The appearance bothers us very, very much, the publicity it has received.

Mr. FLOOD. Well, we are not happy.

Mr. SHILLITO. I can appreciate that.

ATTRACTION OF EMPLOYMENT IN DEFENSE INDUSTRY

Mr. FLOOD. Just what is it that attract military personnel to that particular segment of an industry engaged in weapons development, or vice versa? Now, isn't that funny? Isn't that peculiar? Why are they so attracted? It is like bees to honey.

Mr. SHILLITO. I will give you a complete recap on our findings from 1959 to 1968 and the numbers—of course, there is quite a disparity in the numbers, but there has been almost a comparable attraction to education. There has been almost a comparable attraction to the clergy.

Mr. FLOOD. To the what?

Mr. SHILLITO. To the clergy. In other words, the percentage growth, you know, from 1959 to 1968.

Mr. FLOOD. You mean in the Chaplains' Corps?

Mr. SHILLITO. No, I mean to go into the ministry in whatever field.

Mr. FLOOD. An electronic engineer is going to be a minister?

Mr. SHILLITO. No. All these people are not electronics engineers, Mr. Chairman. But my point is that in a variety of professions the percentage increase has been comparable. Retired officers are not going only into companies who are doing business with the Defense Department.

Mr. FLOOD. I think as a fair defense you will be the first to show that on the record.

Mr. SHILLITO. We will. We will give you the exact statistics.

Mr. FLOOD. As an old trial lawyer, that is the first thing I'd look for. If you have a weapon like that, you should use it because you certainly need it. Nobody ever heard of that angle before. I certainly never did.

(The information follows:)

SUMMARY OF GROWTH COMPARISONS (RETIRED OFFICER EMPLOYMENT CATEGORIES FOR FULL COLONELS, NAVY CAPTAINS, AND HIGHER)

	Estimates		Percentage Increase
	1959	1968	
1. Total retired.....	19,219	37,945	100
2. Actually employed (all occupations).....	9,948	22,704	128
3. Employed—teaching profession.....	1,260	3,100	146
4. Employed—clergy, public office, and administration.....	867	1,869	116
5. Employed—Nondefense (farmers, proprietors, real estate, insurance).....	1,574	3,385	115
6. Employed—top 100 defense contractors.....	767	12,068	170
7. Total generals and admirals retired.....	2,580	3,485	35
8. Generals and admirals employed by top 100.....	249	1183	-26

¹ Being verified.

NEED FOR DATA BY MOS

Mr. RHODES. I hope that the study will also show the MOS' of the various people. Is it broken down that way?

Mr. SHILLITO. That is a very good point. It is not adequately broken down that way.

Mr. RHODES. It is indeed much more meaningful. There is a difference between a man who has been in procurement who goes into a defense industry and a man who is leading a platoon going into a defense industry.

Mr. SHILLITO. Yes, sir; you are exactly right.

Mr. FLOOD. I can see where a fellow who led a platoon might want to go into the clergy, but the electronics engineer baffles me.

Mr. SHILLITO. This is strictly a percentage comparison.

BENEFITS TO INDUSTRY OF EMPLOYING RETIREES

Mr. FLOOD. We are trying to nail this right down to the floor. What does industry gain from hiring military personnel and what does the Government lose? That is the other side of the coin again. As a result of this apparent trend, who gains what? What do they gain and what do we lose?

Mr. SHILLITO. The Government has lost an employee. The Government loses image—such as that which has happened here in the publicity that is brought about. Industry, in many areas, needs people with this kind of competency and in spite of the fact, I think the majority of these companies would prefer not to hire retired military people—

DEFENSE DEPARTMENT HIRING PRACTICES

Mr. FLOOD. Let me ask you another question and you can answer them both in the same speech. Put the shoe on the other foot now. How prevalent is the practice of the Defense Department in hiring people from private industry, and what does the Government gain whenever this happens?

Mr. SHILLITO. A number of people who come into senior positions periodically in defense have come in with industry experience.

Now, I am not quite sure that I have the percentages, but on our appointed people I would guess that probably as many as 25 to 30 percent of us perhaps have industrial backgrounds.

Mr. FLOOD. See if you can find them. This examination we are giving you today constitutes, in effect, a pretrial conference. When we get on that floor, we are counsel for the defense in that case. We have to be.

Mr. SHILLITO. Let me make a comment here, insofar as what the Government gains. We have talked about a lot of problems here in the last couple of days. Yesterday we spent a lot of time talking about the major weapons systems problem. I would submit, Mr. Chairman, that we almost have to have a significant amount of industrial experience in our defense environment in order to assist ourselves in solving many of the problems that we are faced with today. If we don't understand the problems involved in going through the development of a new item, the design of a new item and the phasing of a new item into production and the engineering changes proposed by industry, we just can't get on top of it.

HIRING OF DEFENSE INDUSTRY OFFICIALS

Mr. FLOOD. Here is our problem: You make an announcement that you are hiring Joe Zilch, chief engineer of a famous company. Aren't we lucky to get him? He lands at the airport. There is a press conference. "I want to serve my country. It is a sacrifice to me, but, blah, blah, blah, blah."

One year later the same airport, the guy's going back to the company he came from.

"I said to the Secretary 1 year ago today that I would be here for 1 year." That is not what he said at all. "And now I must go back to where I came from."

This goes on every day.

Mr. SHILLITO. I saw some statistics one time—I think we can probably substantiate this—that would cause us to believe that a major portion of those who come into Government don't go back to the company that they came from, even though a lot of people are inclined to think that this is the case.

There is absolutely no question in my mind that the people who come into this environment do so with the idea of making a contribution. There may be a few who don't feel this way, but on balance this is not the case. They do make a contribution and we do need them. Particularly we need them in the technical areas, the highly technical areas. We would be in pretty sorry shape if we didn't have this kind of know-how.

Mr. FLOOD. The fellow comes here and is fed up with the Department of Defense and he says, "I have had it. I can't go through this another year."

Mr. SHILLITO. And I know exactly how that man feels, yes, sir.

Mr. FLOOD. Mr. Secretary, you came from industry yourself, as did many Defense people before you.

Mr. SHILLITO. Not directly, but interestingly enough, I came back here with the idea of spending 2 years in getting a logistics management research company started—LMI started—and I have been here ever since, Mr. Chairman. I came from that particular organization, a logistics research organization, into Defense.

Mr. FLOOD. Most of these people in my many years of experience here have done very credible and dedicated jobs and done an outstanding thing. I certainly agree with that.

Certainly Mr. McNamara, with his cost effectiveness and cost reduction programs, could never be accused of being a captive of the military/industrial complex. I have heard McNamara accused of a lot of things, but I never heard anybody put a finger on him for that one.

Do you believe there is a danger in the practice of the government using the talents of capable industry officials to the level it is done? Is there a danger in the mere level it has been done?

Mr. SHILLITO. I don't think so. I think our system of checks and balances precludes the possibility of this danger. I think we have to continuously be on our guard. I think we are. I don't think there is a danger here. Do you agree, Mr. Riley?

Mr. RILEY. That is true. These people who are brought into the government from industry or elsewhere, private enterprise, are screened very well before they get in. I think the danger is minimal.

Mr. FLOOD. Are they screened very well before they get out? In case anything rubbed off on them?

Mr. SHILLITO. Undoubtedly I would think they would be screened by their new employer, but there is not really too much screening Defense can do as a person leaves, I am sure you realize that.

Mr. FLOOD. In summary, therefore, the Defense Department must necessarily work closely with industry, must take advantage of the expertise, the talents, and technology industry has to offer, and there is no other sources to which our defense establishment can turn to initiate and develop the weapons so vital to our national defense.

Mr. SHILLITO. You have outlined the situation correctly. This problem will continue unless we were to attempt to go back to the arsenal concept.

Mr. FLOOD. Isn't that about what you have been saying?

Mr. SHILLITO. Yes, sir, absolutely.

LOGISTIC EFFICIENCY

Mr. ADDABBO. Mr. Secretary, on page four of your statement you spoke of certain objectives of logistic efficiency. There was the tightening of supply management, and improved procurement practices.

Mr. SHILLITO. You say how will they be accomplished?

Mr. ADDABBO. Yes.

Mr. SHILLITO. Actually one of the first things that happened after Mr. Packard came on board was to (1) look at our cost reduction program that was touched on by the Chairman; give additional emphasis to that, and (2) apply new emphasis to other logistics performance measurements with which we should concern ourselves. These run across the entire gamut of our logistics operations, not just the procurement areas we have been talking about.

Most of these areas of concern are unrelated to cost-reduction actions. This new system called the logistics performance measurement and evaluation system is designed to develop performance objectives for select areas of logistics management and to measure actual performance against the objective. In-depth analyses will be performed when appropriate and recommendations for improvement will be acted upon promptly.

We thought we would restrict coverage to 20 to 30 key areas that are problems now or potentially could become problems. This covers everything from item entry control, inventory item reduction—as you know, we have a staggering number of items in our inventory—letter contracts, undefinitized change orders, the problem areas, if you will, in overall logistics management.

We have issued a DOD directive to each of the services, signed by Mr. Packard. I am sorry I don't have a copy of that with me.

Mr. FLOOD. How long is it? How many pages?

Mr. SHILLITO. It must be at least four or five pages.

Mr. FLOOD. If it is only four or five pages, I think we want that in the record.

Mr. ADDABBO. Yes.

Mr. FLOOD. That is the crux of this thing.

Mr. SHILLITO. I do have a copy of it with me and it is four pages.

Mr. FLOOD. Provide it for the record.

(The document follows:)

DEPARTMENT OF DEFENSE DIRECTIVE No. 5010.24

Subject: Logistics performance measurement and evaluation system.

I. PURPOSE AND OBJECTIVE

A. The purpose of this directive is to establish policy and assign responsibilities for a logistics performance measurement and evaluation system (hereinafter referred to as "the system"). The system will be an organized procedure for identifying logistics problem areas, recommending corrective management actions, setting goals for improved performance, evaluating current performance against past accomplishments and approved goals, and identifying further action required if appropriate.

B. The objective of the system is to concentrate management improvement actions on persistent problem areas by establishing performance standards and evaluating performance against these standards in areas where current progress is substantially below that desired.

II. APPLICABILITY

The provisions of this directive apply to the military departments, Defense Supply Agency, and other defense agencies, when appropriate.

III. RESPONSIBILITIES

A. The Assistant Secretary of Defense (Installations and Logistics) (ASD (I. & L.)) shall assure the effective development, implementation, and operation of the system throughout the Department of Defense. In carrying out this assignment, the ASD (I. & L.) will develop and issue uniform procedures requiring: (1) the establishment of realistic performance objectives; (2) the measurement of progress against past performance and current objectives; (3) the evaluation of results; and (4) the development and implementation of recommendations to insure that corrective action is taken promptly, when necessary.

B. The Assistant Secretary of Defense (Comptroller) shall assure that the resource management systems of the Department of Defense established under DOD directive 7000.1 are utilized to the maximum practicable extent in furnishing data needed for use in the system.

C. The Secretaries of the military departments or their designees and the Director of the Defense Supply Agency will:

1. Implement the system within their organization.
2. Recommend for ASD (I. & L.) consideration areas for inclusion in or deletion from the system, including justification to support the recommendation.
3. Recommend for ASD (I. & L.) approval a performance goal for each area covering the current and succeeding fiscal year.
4. Initiate appropriate internal action to insure:
 - (a) achievement of approved goals;
 - (b) that all reports represent the formal and accurate position of each reporting component concerned;
 - (c) prompt implementation of ASD (I. & L.) recommendations for corrective action; and
 - (d) that qualified personnel are assigned at appropriate echelons to carry out these responsibilities.

D. Functional area committees: A committee will be established for each functional area selected for inclusion in the system. Each committee will be composed of a representative of OSAD (I. & L.), as chairman, a representative of OASD (Comp.) as appropriate, and a representative from each affected DOD component. Each committee, for its assigned functional area, will be responsible for recommending policies, guidance, initial goals, measurement techniques and/or performance indicators, analyzing results, and, recommending additional action when appropriate.

IV. POLICIES

A. Areas will be eliminated from coverage whenever the ASD (I. & L.) determines that problems have been satisfactorily resolved and approved performance goals are being met.

B. Additional areas will be incorporated into the system based on recommendations from OSD, the military departments, or DSA, based on identifiable current or anticipated problems in key functions or operations.

C. Existing reports, in most instances, will provide the data base for this system. When major deficiencies or significant voids in existing reports are identified, however, recommendations for corrective actions will be made to appropriate functional managers.

D. Functional areas will be selected in a manner which assures that priority attention is concentrated where the greatest needs exist.

E. Performance reported for each functional area will represent the combined effect of all management actions taken for that area.

F. A DOD instruction will be issued by the ASD (I. & L.) to establish the reporting requirements of the system.

V. EFFECTIVE DATE AND IMPLEMENTATION

A. This directive is effective immediately and its full implementation will be a matter of highest priority at all appropriate levels within the Department of Defense.

B. Four copies of implementing issuances incorporating this directive will be forwarded to the ASD (I. & L.) within 60 days after the date of this directive.

Mr. SHILLITO. The directive has gone out. Now, you just don't do this thing with a directive. So the next step is to develop and issue an implementing instruction. The instruction contains detailed guidance that spells out what has to be done in each of the areas, the format for information required in each area, the due date for reports from DOD components, the requirements for establishing objectives, performing analyses, and so forth. We will monitor results regularly. Generally we won't do a followup job more often than once every quarter unless the area is very seriously out of control.

We would expect—and I think I mentioned this in my statement yesterday—we would expect to have this system formally implemented by about July 1. At least that is our target. This is going to be pretty tight and may run to the 15th of July.

It will present a pretty interesting operation. We will be able to say, "Here are our 25 or 30 major problem areas—other than things like we were talking about yesterday, major weapons systems, et cetera—here are our objectives, here is our performance and here are our solutions to the problems."

By the way, we only have 4 percent of our total people in logistics in procurement and a very small percentage of that 4 percent are wrapped up in major weapons systems. So, even through we find ourselves spending a lot of time talking about this particular area—

PROBLEMS WITH PROGRAM MANAGEMENT

Mr. ADDABBO. Mr. Secretary, yesterday Mr. Lipscomb asked you a question when you were discussing the chart. Where and what went wrong with the DOD program management prior to now, and then Mr. Flood asked you a question and I believe you answered Mr. Flood's question, but I didn't understand your answer to Mr. Lipscomb's question. Would you answer that question, where we went

wrong before? We are using the same old chart and it seems we are perpetuating the same program.

Mr. SHILLITO. This procedural chart was presented not with the idea of suggesting this is new or anything like that at all. It was shown only to allow us to explain what happens when we move across this life cycle spectrum.

We might put that up again in the interests of answering your question, Mr. Addabbo.

On many of our major weapons systems in the past we didn't have the development-concept papers that we talked about here. We didn't have the major weapons systems review council that we talked about. We had a tremendous overlap between development and production, which we have emphasized will be minimized in the future. We are not going to cut this out completely, but it will be minimized in the future.

I am not suggesting to you that we are not going to have problems as far as major weapons are concerned. We will still have problems in some of these areas. It is virtually impossible in an exploding technological environment to avoid them. I think we have identified the problem for you. Again I would emphasize that the management of these programs is the responsibility of the services. I think we have made it very clear that our problem really starts to hit us as we phase from development to production.

Mr. FLOOD. What is so surprising about that? Even I know that.

Mr. SHILLITO. The greater the overlap, the greater the problem. I think this was emphasized very clearly by Congressman Rhodes yesterday too.

Mr. FLOOD. It is not just the overlap; you are starting to deal with hardware; things.

Mr. SHILLITO. That is right.

A point that ought to be mentioned here—I don't mean to take so long answering a question, but it is an awfully important thing. Last night when I got back to the office and started putting myself back together I found myself thinking about, what do we really have to concern ourselves with—

Mr. FLOOD. My best answer to any question comes about 3 o'clock in the morning and I say, "Why didn't I think about that before this?"

MANAGEMENT OF CHANGE

Mr. SHILLITO. The name of the game in this environment is the management of change.

Mr. FLOOD. You don't want to copyright that, do you?

Mr. SHILLITO. No. Look at the Pershing. We had over 10,000 changes in the Pershing.

Mr. FLOOD. No fooling. I went through every one of the 10,000.

Mr. SHILLITO. Look at some of our combat vehicles. It is not abnormal to have 1,000, 2,000, or 3,000 changes. Take fire control systems. I remember one fire control system in the early mid-fifties where we had 18,000 changes. This fire control system went into F-86 aircraft. It gets down to how we actually control and manage these changes. This is the key to our success in this business. I venture to say that we can find, and hopefully we will be able to prove to you

in months and years to come, that growth is minimally caused by overrun, Mr. Chairman; that most of our growth is caused by this change situation. Controlling them and planning them is where we have to do our job better.

USE OF PROCUREMENT FUNDS FOR R. & D.

Mr. ADDABBO. Mr. Secretary, the General Accounting Office newsletter of June 15, volume III, No. 5, speaks of R. & D. and missile procurement. They say that certain procurement funds were used for R. & D. effort. Was this matter brought to the attention of this committee and approved by this committee, or was this just done within the department?

Mr. SHILLITO. I can't answer that, Congressman Addabbo. Can you, Mr. Malloy?

Mr. MALLOY. No, I don't recognize that.

Mr. ADDABBO. This is in regard to the Minuteman.

Mr. SHILLITO. This is entirely conceivable.

Mr. LIPSCOMB. We covered that during the procurement and R. & D. hearings. It is on the Minuteman program.

Mr. FLOOD. In what way do you transfer funds from R. & D. into actual procurement?

Mr. SHILLITO. It is very hard for me to answer. In fact, that production decision line is sloped at a significant angle in line with Congressman Rhodes' query yesterday. It gets pretty tough sometimes to say \$1 goes to procurement and \$1 goes to R. & D.

Mr. FLOOD. What are you going to do now with reference to Mr. Addabbo?

Mr. SHILLITO. Do you mean with regard to the points brought up in the GAO document? I will look into it and hopefully answer your question as best we can. I have a hunch that you could say that some of our procurement dollars have been used in some developmental work and probably some of our developmental dollars have probably gone over to production.

Mr. FLOOD. He is sure of that. He wants to know to what extent.

Mr. SHILLITO. I will try to answer that.

(The information follows:)

DEPARTMENT OF THE AIR FORCE,
Washington, September 26, 1968.

Mr. C. M. BAILEY,
Acting Director, Defense Division,
U.S. General Accounting Office.

DEAR MR. BAILEY: Reference is made to your letter of June 5, 1968, on "Use by the Air Force of Production Funds for Apparent R. & D. Projects" (OSD case No. 2781), and to our interim reply of July 25, 1968, on the matter.

In our July 25, 1968, letter, we indicated our need for further investigation of the matter and stated we would provide further comments to you on or before September 20, 1968.

Your report states that missile procurement appropriation (57X3020) moneys were used to finance certain supplemental agreements, initiated by the Air Force under the product improvement program, which were research and development in nature and, therefore, should have been supported with research, development, test and evaluation (R.D.T. & E.) funds.

Your report also states that the disclosure and approval procedures for product improvement programs, as defined in Air Force Procurement Instruction (AFPI) section 59, part 5 were not followed.

You conclude that "program and procurement officials should be impressed with the need for (1) full disclosure in program budget submissions to allow for ready detection and critical evaluation by budget approval officers of significant provisions for product improvements and (2) procuring R. & D. effort from R.D.T. & E. funds rather than from funds appropriated for the procurement of approved equipment." You also state that AFPI 59-500 through 59-505 should be clarified to avoid a recurrence of the matters discussed in your letter.

Under the then existing definitions in AFPI 59-503(d), it was our belief that production funds were properly usable for the procurements in question.

Since your review, the Department of Defense has issued revised instruction DODI 7220.5 which clearly delineates the circumstances for use of R.D.T. & E. and production funds for "product improvement" purposes. This instruction was implemented by the Air Force under Air Force Regulation 170-3, dated March 28, 1968. The referenced DOD Instruction has been similarly implemented by the Army and the Navy.

We agree that the disclosure and approval procedures of AFPI section 59, part 5 were not followed for the procurements you cite. These procedures are now being followed. This section and part of AFPI is being revised and updated, and will reemphasize the need for submission of a copy of the product improvement proposal to Headquarters USAF. More specifically, copies will be submitted to the Directorates of Production and Budget. Compliance with the DOD instruction and the AFPI should preclude recurrence of the incidents discussed in your report.

We have instructed the Air Force Systems and Logistics Commands to make a broad basis review to determine whether there are other instances of the circumstances described in your report. The Army and the Navy advise they have no knowledge of any funding deviations of the type here under consideration.

We appreciate your bringing these matters to our attention and the opportunity afforded to comment on your report.

Sincerely,

LOUIS A. COX,
Assistant to Deputy Assistant Secretary (Procurement).

P.S.—Compliance with the DOD instruction and the AFPI should preclude recurrence of the incidents discussed in the report. The Air Force Systems and Logistics Command has made a broad basis review and determined there are no instances of the circumstances discussed in the report.

Mr. SHILLITO. There is another point that ought to be made and that is we know there are some constraints with regard to the extent because roughly the mean average amount of total expenditures prior to that point of production in the life cycle of a major weapons system is probably less than 15 percent of the total dollars.

CONTRACTS TO SUSTAIN INEFFICIENT CONTRACTORS

Mr. ADDABBO. Something must be wrong for the General Accounting Office to set it up in their investigation. On Tuesday when Secretary Moot was before us, I asked whether it was true that in several instances the Defense Department, to assure continued life of certain inefficient contractors if they had incurred some substantial national security asset, that the Government would try to bolster them up by giving them additional dollars, additional contracts. Secretary Moot said he knew of no cases.

Then we read in the paper that a maker of a faulty missile unit got a new \$400 million order. Would this come within the purview of trying to bolster an inefficient operation?

Mr. SHILLITO. It could be interpreted that way.

I think I have the same article here, sir. While I am not aware of the particular program or the particular contract I have the impression that the quality of the product has improved significantly over the past several months to a year.

There is another point. When you say "An inefficient contractor" or "a deficient contractor" and you talk about "a major company," you really have to get more specific. A major company can have nine or 10 major divisions and within each major division you can have several profit centers. You almost have to get down to a specific profit center to say that something is good or something is bad concerning its operation. You can hardly say the whole company is bad because of what went wrong on a particular program in a specific division of a company.

Mr. ADDABBO. Using that basis, will you analyze North American for us, which is the company involved in this particular article?

Mr. SHILLITO. Yes.

(The information follows:)

With respect to the newspaper article and the reference to the additional guidance and control units ordered from the contractor, the following explanation is made.

It is true that in its early operational life Minuteman II did experience low reliability in the G. & C. units. While some additional sets (55 out of a total of 756 sets) were bought because of the reliability problem, this was done as insurance against a continued reliability problem which could keep missiles off alert for lack of G. & C. spares. However, the Air Force's primary effort was to improve the reliability and therefore attack the basic problem. This was done by in-line production improvements and retrofit changes to sets already in the field. This program was very successful. The original goal for mean time between failure (MTBF) for Minuteman II G. & C. sets was very high.* The original units fielded in 1966 exhibited an MTBF of only 20 percent of this goal. The operational Minuteman II's show a MTBF $2\frac{1}{2}$ times better than earlier. The latest sets produced within the past year are essentially achieving the original goal. The reliability improvement program has contained the reliability problems and we are able to maintain a very high percentage of the Minuteman fleet of strategic alert.

With respect to the organization of North American Rockwell Corp. and its various divisions and product groups, the following explanation is offered:

The North American Rockwell Corp. is a large industrial organization formed in September 1967 with the merger of North American Aviation and Rockwell-Standard Corp. The corporation is organized into two major groups—the commercial products group and the aerospace and systems group.

The aerospace and systems group has a number of divisions specializing in aircraft, atomic energy, missiles, electronics, space vehicles, rocket propulsion, and other product lines. The commercial products group comprises the manufacturing and sales activities for industrial and commercial markets. Its many plants are organized into divisions in such fields as automotive products, agricultural and industrial equipment, private airplanes, and textile machinery.

This corporation is one of the Nation's largest Government contractors. It provides nearly 50 product lines to customers that include almost all the agencies procuring advanced systems and equipment. Some of these are the Air Force, Navy, Army, NASA, and Atomic Energy Commission. Other governmental customers include the Federal Aviation Agency, Department of State, Department of Commerce, Department of Housing and Urban Development, Department of Health, Education, and Welfare, State and local agencies, and foreign countries.

The aerospace and systems group has its executive offices in El Segundo, Calif. Under this group are the Atomics International Division at Canoga Park, Calif.; Autonetics Division at Anaheim, Calif.; Columbus Division at Columbus, Ohio; Los Angeles Division at Los Angeles, Edwards Air Force Base, El Segundo,

*Specific data on MTBF is classified in the interests of national security.

El Toro, Hawthorne, and Palmdale, Calif.; Rocketdyne Division at Canoga Park, Chatsworth, Edwards Air Force Base, El Segundo, and Van Nuys, Calif.; Neosho, Mo., New Orleans, La., McGregor, Tex., and Reno, Nev.; Space Division at Downey, Long Beach, and Seal Beach, Calif., Bay St. Louis, Miss.; Cocoa Beach, Fla., Houston, Tex., New Orleans, La., Tulsa, Okla. and White Sands, N. Mex. There are other operations in Thousand Oaks, Calif., McAlester, Okla., Princeton, W. Va., El Segundo, Calif., and Reno, Nev.

Sales for the corporation amounted to \$634.2 million for the quarter ending March 31, 1969, and \$2,639.8 million for fiscal year ending September 30, 1968.

COMPARISON OF C-5A TO BOEING 747

Mr. ADDABBO. We have read much about the C-5A and its comparison with the Boeing 747. There was criticism with reference to the cost-plus-incentive-fee contract. There was one study made which showed that over 1,000 Air Force contracts contained 337 percent over-ages, over the original procurement cost.

I read that the C-5A was to cost only \$22 million and it is now expected to cost \$45 million, and actually the Boeing 747 was estimated at \$20 million and now the cost will be \$22 million. As a matter of fact, the Boeing 747 design was submitted in competition to Lockheed's C-5A. Are these figures correct? Is there any reason for these great discrepancies?

Mr. SHILLITO. External configuration, as I understand it, is comparable in the 747—to look at one versus the other externally, there is similarity. However, they are not the same aircraft—particularly when you get the overall roll-on roll-off, load, unload performance requirements in the C-5A versus the 747F, the F meaning freighter.

The C-5A was designed to military specifications primarily for deployment of troops and equipment to the forward areas without the need for prepositioning of special ground equipment at the site of the contingency action. In its current configuration the 747F has virtually none of this capability. Based upon an analysis by the Air Force, the C-5A can accommodate all of the vehicular equipment of an infantry division force. However, due to the cargo door the 747F can accommodate only 24 percent by weight and 53 percent by count.

Present loading equipment of the Air Force will not reach the 16-foot floor of the 747F and new equipment would have to be designed and prepositioned at the contemplated sites of deployment to assure the rapid turn-around of such aircraft. Assuming such loading equipment were available the limitation of only a forward opening on the 747 would extend the time required to load and/or discharge the cargo.

I will provide you a table which compares the characteristics of C-5A and 747F aircraft.

(The information follows:)

COMPARISON OF CHARACTERISTICS OF C-5A AND BOEING 747 AIRCRAFT

	C-5A	747F
Takeoff gross weight (pounds).....	764,500	680,000
Maximum landing weight (pounds).....	635,850	564,000
Wing area (square feet).....	6,000	5,500
Fuel capacity (gallons).....	49,000	46,770
Engines, jet:		
Number.....	4	4
Thrust (pounds).....	41,100	42,000
Cruising speed (miles per hour).....	507-530	622-667
Payload (3,050 nautical miles) (pounds).....	220,000	215,600
Cubic capacity (cubic feet).....	34,734	23,890
Main deck floor space:		
Square feet.....	2,735	2,220
463L pallets (number).....	36	32
Cargo compartment:		
Forward loading opening.....	(1)	(1)
Aft.....	(3)	None
Loading height (feet).....	(3)	16
Landing gear, number of wheels.....	28	18
Aldrop capability.....	Yes	No
Takeoff distance (feet).....	7,500	9,500
Landing distance (feet).....	3,240	4,200

¹ Height, 13 ft. 5 in.; width, 19 ft.

² Height, 8 ft.; width, 12 ft.

³ Height, 9 ft. 5 in.; width, 19 ft.

⁴ 4 ft. 5 in. with drive-on, drive-off ramps.

Mr. SHILLITO. I haven't any feel at all as to what the growth has been on the 747. I do know that on many commercial aircraft in the past, there have been significant cost increases and the papers have reported this. The 880's, the 990's, even the 707's.

Mr. FLOOD. Are you talking about growth or overrun?

Mr. SHILLITO. Growth. Some of this would border on overrun in a commercial product, but the C-5A is a significantly different aircraft than the 747. I make that statement even though I don't feel as qualified as others would be to give you a complete answer.

Now, with regard to your point on cost-plus-incentive-fee contracts (CPIF). I may have missed it a little bit Congressman Addabbo. You talked about the growth that we have experienced on CPIF contracts and whether a 300-plus-percent growth is common. Is that pretty much your question?

Mr. ADDABBO. Yes.

Mr. SHILLITO. It is not a common kind of growth. We certainly have had contracts that have gotten pretty close to that kind of number. We have looked at several programs since we have been on board, and the growth in these programs—as you come down the curve—is greater in CPFF, less in CPIF, less in FPI, and less yet in firm fixed price.

One of the things we hopefully will have available in not too many months will be an identification of each closed major program, initial estimates versus windup, and possibly what caused the growth. If we are successful in pinpointing these things when we come before you gentlemen next year we would be able to say "Statistically this is what happened as far as all growth or a significant part of our growth, by type contract, is concerned."

Mr. FLOOD. You have heard the case of the gorilla who is going through his act in the cage and somebody throws a banana to him and that ruins the act.

These people do very well until somebody throws them a banana.

REPROGRAMING OF FUNDS

Mr. ADDABBO. Mr. Secretary, will you give us a breakdown for the past 2 years of all reprograming actions, showing amounts and programs involved, where the funds were taken from, and to what new programs they were applied?

Supply that for the record.

Mr. SHILLITO. We will try to do that.

(Note: A classified schedule covering all reprograming increases and related decreases of \$5 million or more for procurement of aircraft, missiles, ships, and tracked combat vehicles and all similar reprograming of \$2 million or more for research, development, test, and evaluation appropriations was provided to the committee. The schedule listed 552 individual reprograming actions and provided a reference to the detailed explanation and impact of each action as contained in the reprograming documents submitted to the Committee on Appropriations.)

DEFENSE PROFITS

LMI STUDY

Mr. FLOOD. Now, about Defense profits. The profits of Defense contractors have been another area of concern during the past several years and that is certainly understating the case. It seems that this area has been studied by industry, by GAO, and as you mentioned in your statement, by the Logistics Management Institute. You have suggested that GAO be asked to study the LMI approach in detail and verify its statistical soundness and its conclusions. Is this being done?

Mr. SHILLITO. Not yet, Mr. Chairman.

Mr. FLOOD. Do they have a target date?

Mr. SHILLITO. We have not asked the GAO to do this ourselves. I did talk to Mr. Staats briefly about it and he was receptive to the suggestion. That has not been too long ago. We have not had the opportunity to discuss it further in detail.

Mr. FLOOD. What do you have in mind?

Mr. SHILLITO. Based on the discussion we have had today, I will suggest to GAO that they do this analysis. I think it would be useful.

Mr. FLOOD. Don't forget, you join us in the suggestion.

Mr. SHILLITO. Yes, sir. Many people feel that a significant portion of the problem is manifested in abnormally high profits.

Mr. FLOOD. There is no doubt about that. There is no doubt about the state of mind.

Mr. SHILLITO. While we have some problems in this environment, I maintain that excessively high average profits are not being earned by Government contractors.

Mr. FLOOD. GAO studied this problem about 2 years ago. Industry has also come up with statistics in this area. Now, do these studies of GAO and of the industry agree with these LMI conclusions? GAO has been at it for 2 years.

Mr. SHILLITO. GAO has really not studied industry profits. We have a vast amount of data on realized profits. May I take a few moments and show you a few pictures?

Mr. FLOOD. I know you have a vast amount of data. That reminds me of the newspaper reporter who went to the San Francisco fire. He said, "There is a big fire with a lot of excitement and I can't find out anything."

Go ahead. What do you want to do?

Mr. SHILLITO. I think there are a couple of things that warrant attention. I will be glad to give you the statistics we are talking about for the record.

Mr. FLOOD. Before you do that, I want to be sure that I understood you. I pointed out to you that 2 years ago GAO made this study of industry. Now, did you just say to me they didn't make it?

Mr. SHILLITO. Not to my knowledge. I am not aware of a GAO study of profits.

Mr. MALLOY. Mr. Chairman, GAO made a study of profits in response to a specific request they had from, I believe, a committee of the Congress. This report, however, dealt exclusively with "going-in" profits. These are the rates agreed by the parties before performance. This information they obtained from the records of the Department of Defense and it was consistent with our own figures which we published.

Mr. FLOOD. Not of industry?

Mr. MALLOY. They did not collect figures from industry, to my knowledge.

Mr. SHILLITO. That is correct. Their study dealt with the in-house DOD going-in profit target data, on negotiated contracts.

Mr. FLOOD. It was a study of industry profits?

Mr. SHILLITO. No, sir. It was "going-in" negotiated target profits. It was not "realized" industry profits. It was the profits negotiated—the anticipated profits—in our contracts with industry.

Mr. FLOOD. It was not profits after the fact?

Mr. SHILLITO. That is right.

Mr. FLOOD. That is what you and I are going to join hands to get; is that right?

Mr. SHILLITO. Yes, sir. (A chart was referred to entitled "Profit on sales (Before Tax)." The chart appears on p. 482.)

Mr. SHILLITO. Yes, sir. Two pieces of data we have are rather consequential. One is the Renegotiation Board data. This is not audited data. It is profits on sales, not profit on capital. It is almost all of the sales and profit data of almost all Government contracts and in 1967-68 we are looking at \$38.8 billion in sales, with realized profits, pre-tax, at 4.4 percent.

Another piece of information available to anyone who wants it is the Federal Trade Commission—Securities and Exchange Commission data on industry in general in the United States. They do a sampling of 11,000 companies of about 178,000 total companies throughout the United States. This is, again, their pre-tax profit on industry in general throughout this country.

Mr. FLOOD. I saw a story on that recently in the press, this very thing.

Mr. SHILLITO. You can see the Renegotiation Board data. It has some deficiencies and maybe we can do something about getting more information because it is such a significant piece.

(A chart entitled "Profit on TCI, High and Medium Volume Companies (Before Tax)" was referred to. The chart appears on page 484.)

Mr. SHILLITO. This chart shows the profits on total capital investment. Again this is before tax and I am defining total capital investment as equity capital investment plus long-term debt. That is total capital investment.

Mr. FLOOD. At a time when the 7 percent tax was in effect?

Mr. SHILLITO. This runs from 1958 through 1967.

We have compared the sampling of LMI data with FTC-SEC only for the hard-goods portion of the FTC-SEC file. This includes about 3,500 of the 11,000 companies sampled by the FTC-SEC.

When I say "Defense," I mean high and medium volume companies. This is the hard goods business in Defense for companies doing over \$200 million per year. This is almost 93 percent of the total dollars, plus almost 50 percent of the sales dollars of companies doing between \$25 and \$200 million per year with us.

The consolidated high and medium company sample includes 82 percent of all hard good dollars of companies with whom we do business.

Mr. FLOOD. That is 11,000 companies out of 127,000?

Mr. SHILLITO. No, the FTC-SEC uses a sample of approximately 11,000 companies.

The lower line is only 40 defense companies. This gives us roughly 82 percent of the sales dollars for hard goods of companies doing in excess of \$25 million per year. Note that these figures are pre-tax and that the return is measured against the total capital investment. Select any number at any point along the line and you can see that the defense average is falling below the FTC-SEC average on total capital investment. We are looking, in this instance, at roughly a total capital investment of \$5.5 billion for defense and \$110 billion for FTC-SEC. In the last year the average profit was 13 percent on total capital investment for Defense and 18 percent for the SEC-FTC group.

If you examine equity capital investment, a rather comparable differential can be seen. The point is that average profits on defense business, on sales, on equity, or on total capital investment, are less than profits realized by these companies on their commercial business, or profits realized in the nondefense portion of our economy.

This is why we think it would be advisable for GAO to check out this data for validity.

LMI STUDY OF DEFENSE INDUSTRY PROFITS

Mr. SIKES. Suppose you place in the record at this point a summary of the general conclusions of the LMI study and show, if possible, how profits of defense contractors compare with those engaged in nondefense business over the past several years.

Mr. SHILLITO. Yes, sir.

(The information follows:)

DEFENSE INDUSTRY PROFIT REVIEW—A STUDY BY THE LOGISTICS MANAGEMENT INSTITUTE

SUMMARY OF FINDINGS

The Logistics Management Institute recently completed its review of earned profits in the Defense industry for the period 1958 through 1967. The High and Medium company sample included data on 40 major Defense contractors whose volume of business represent over 92% of High Volume defense sales and 49% of Medium Volume defense sales. The report, updating the study performed last year by LMI, depicts profit in relation to sales, equity capital, and total capital invested (equity plus long term debt).

The following principal conclusions and recommendations were contained in the report:

Average Defense profits are lower than the average FTC-SEC and commercial profits of the participating sample firms. In 1967 the gap between the Defense average profits and commercial/FTC-SEC average profits narrowed from that experienced the previous year. The average before-tax profit/sales rate on Defense business in 1967 was 4.17%, in contrast to 6.38% on commercial business and 8.7% for the FTC/SEC companies. For comparison to 1966, the rates were 4.47% on Defense, 9.16% on commercial and 19.0% for FTC/SEC.

The Defense sales of the sample companies averaged approximately sixty percent of their total sales of 1958. In 1967, Defense sales declined to forty-six percent of the total sales.

Increased use of competition in DOD procurement has been largely responsible for the reduced overall Profit/Sales ratios on Defense business. The realized profit to sales ratio on price competitive contracts has been in the neighborhood of zero from 1963 through 1967, while the noncompetitive firm fixed price profit to sales ratio for the past several years has been approximately 10%.

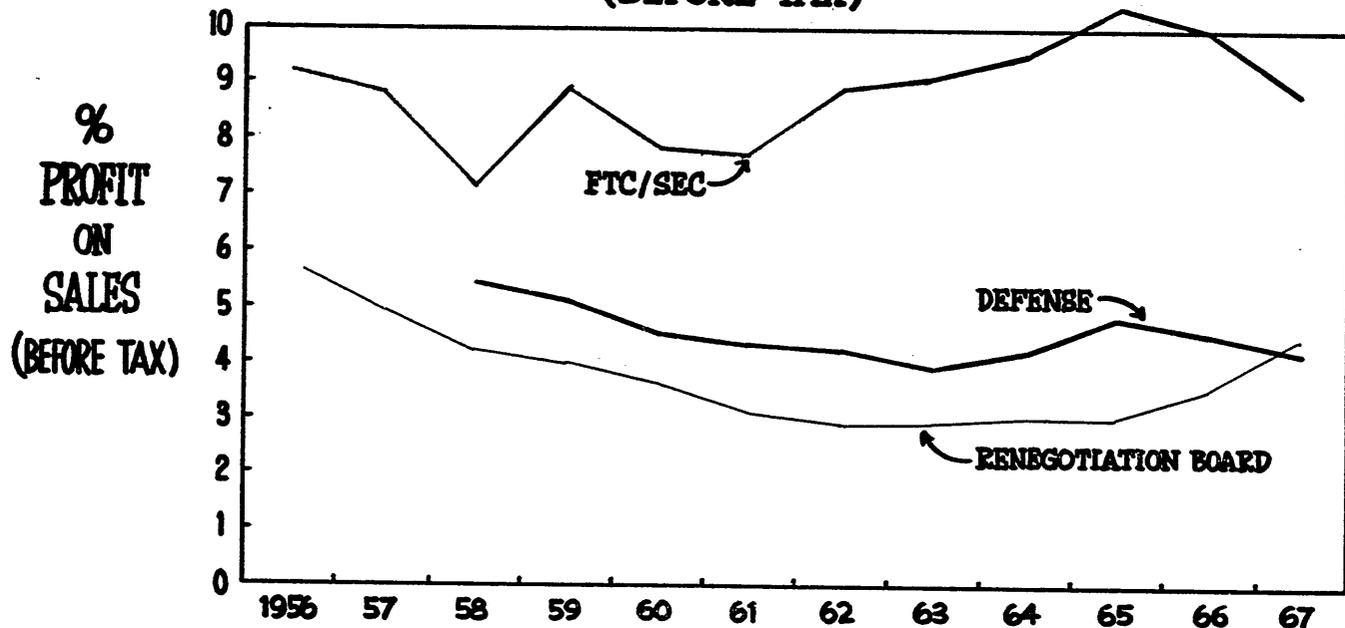
The companies in the sample increased their ratio of facilities to sales by forty-five percent from 1958 through 1967. This increased company investment in facilities has been primarily responsible for the decline in total capital turnover (from 3.8 to 3.1) on Defense business. For the same period of time, the commercial and FTC-SEC ratio remained relatively stable at the lower values of 2.0 to 2.2. The report further points out that the increased use of fixed price contracts has been partially responsible for the decrease in capital turnover rates because companies are required to furnish more of the working capital on this type of contract.

The Report stresses that profit inequities exist because differences in contract capital requirements are not reflected in Defense profit rates. A separate study by LMI emphasized the need to relate profit objectives on negotiated contracts to the contractors investment.

The LMI report concludes that in the area of competitive contracts there is little that can or should be done to affect profits. In the non-competitive negotiated category the report urges a change in the method of developing profit-objectives which will give greater weight to the contractors investment. A study of this approach has been in progress by the Department of Defense for the past year and it is a topic which is also being analyzed and evaluated by the Industry Advisory Council.

The attendant charts display the profit trend over the past decade by relating defense profit to sales, equity capital and total capital investment. For comparative purposes, data has also been shown for the Renegotiation Board and for the sample of FTC/SEC companies.

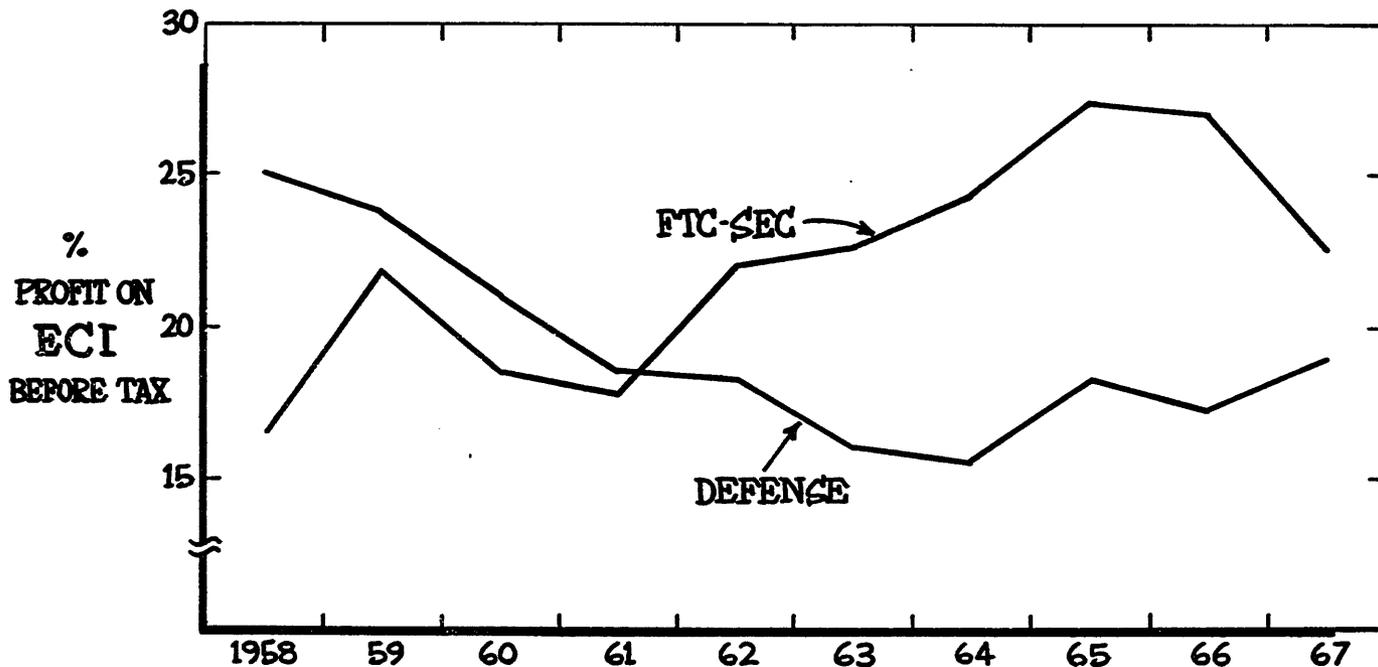
PROFIT ON SALES (BEFORE TAX)



FTC/SEC	111.8	120.1	107.6	121.4	127.0	128.9	145.0	155.0	167.0	191.5	220.1	230.4
% PROFIT	9.2	8.8	7.1	8.9	7.8	7.7	8.9	9.1	9.5	10.4	10.0	8.7
RENEG. BD	27.7	26.6	26.3	28.5	25.1	29.3	31.2	39.3	34.8	31.8	33.1	38.8
% PROFIT	5.8	4.9	4.2	4.0	3.6	3.1	2.9	2.9	3.0	3.0	3.5	4.4
DEFENSE	—	—	12.7	13.4	13.2	14.2	15.4	14.9	13.5	12.8	14.8	17.9
% PROFIT	—	—	5.4	5.1	4.5	4.3	4.2	3.9	4.0	4.8	4.5	4.2

PROFIT ON ECI

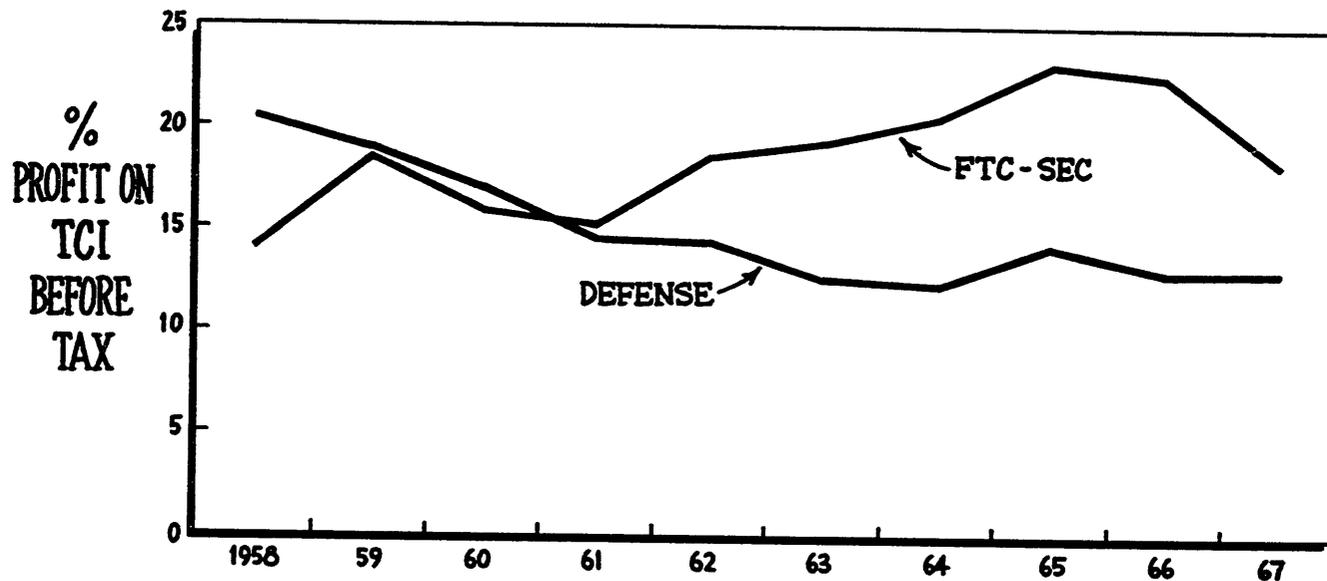
HIGH AND MEDIUM VOLUME COMPANIES (BEFORE TAX)



DEFENSE ECI \$ M	2,671	2,814	2,769	3,145	3,404	3,463	3,325	3,297	3,684	3,887
% PROFIT ECI	25.0	23.7	21.1	18.5	18.3	16.1	15.6	18.2	17.4	18.9
FTC SEC ECI \$ M	46,200	49,600	53,200	55,400	59,100	62,200	66,200	72,600	81,600	89,200
% PROFIT/ECI	16.5	21.9	18.5	17.8	21.9	22.6	24.1	27.4	27.1	22.5

PROFIT ON TCI

HIGH AND MEDIUM VOLUME COMPANIES (BEFORE TAX)



DEFENSE TCI \$M	3,267	3,486	3,416	3,942	4,316	4,425	4,184	4,123	4,911	5,556
% PROFIT / TCI	20.4	19.1	17.0	14.6	14.3	12.5	12.2	14.3	13.0	13.0
FTC-SEC TCI \$M	54,100	57,800	62,100	65,200	70,000	73,400	77,900	86,000	97,900	110,400
% PROFIT / TCI	14.1	18.8	15.9	15.1	18.5	19.2	20.4	23.1	22.6	18.2

VALIDITY OF LMI STUDY

Mr. SHILLITO. When that individual's study came out, a number of people questioned the data and consequently a number of people—

Mr. SIKES. Not a number, certain columnists questioned it, very pointedly.

Mr. SHILLITO. Yes. As I recall, Mr. McNamara was one who said he just didn't think the data was quite right, or he inferred that.

As a result, we asked Mr. Robert Vandell, a capable and, in fact, outstanding economist from the University of Virginia to examine the validity of the data presented in the study. Perhaps a copy of his most recent analysis with regard to profits would be helpful and, if so, we can make it available.

Mr. FLOOD. Provide it for the committee's use.

Many people are going to read this testimony on these subjects that we have been going into in the last few days.

Mr. SHILLITO. We appreciate that.

EFFECT OF ASPR ON LIMITING PROFITS

Mr. FLOOD. How effective has the weighted guidelines provisions of ASPR been in limiting the defense contractors to only a fair and equitable profit commensurate with the risk involved?

Mr. SHILLITO. I am going to ask Mr. Malloy to respond to this question after I make an observation. One, we have to realize that the weighted guidelines—ASPR section 3-808—are designed to allow us to structure target profit objectives for negotiated contracts. It does not relate to "coming out" or "realized" profits by a company. The weighted guidelines consider his in-house effort, his performance in the past, and his risk exposure. Based on this we arrive at a prenegotiation profit objective. We are now in the process of looking at in-house data and comparing this data with "coming out" data. As you can appreciate we have several years lag time between the award of a contract and its completion. The weighted guidelines were first introduced in 1963 and became mandatory in 1964.

Mr. FLOOD. Have you gone far enough to permit you to take any steps to refine these guidelines in order to make them more effective? Have you gotten that far?

Mr. SHILLITO. We have identified areas where we would like to see an improvement. One problem with the guidelines is that they are tied entirely to profits on costs. They do a good job in allowing us to develop negotiated target profits to cost, but they do not adequately relate profit to capital.

Mr. FLOOD. At this point in the record will you explain briefly or within reason how these guidelines work?

Mr. SHILLITO. We will do that.

(The information follows:)

THE WEIGHTED GUIDELINES PROFIT PHILOSOPHY

Implemented into procurement policy in 1964, the weighted guidelines (WGL) provides a rationale and uniform approach for DOD personnel to use in evaluating the various factors that influence profit on a Government contract. Each major element of cost is individually evaluated and assigned a numerical rating which reflects the merits and relative importance of this item to the procurement. In

addition to this analysis of cost elements, quantitative values are also assigned for other factors such as past performance, cost risk, etc. From the total list of items rated, a composite or weighted average profit percentage is developed, which when applied to the total cost projected for the contract, produces the pre-negotiation profit objective. (Tab 1 depicts the range of factors available to the negotiator.) It should be noted that this composite is a profit objective, a rational and methodically developed idea of what should constitute a reasonable profit for the contract. It is not an ironclad figure but simply a sound and well reasoned basis for debating the logic of the total profit estimate with the contractor. The objective figure represents not only the opinion of the contracting officer but in many cases also reflects the judgment of other key specialists on the Government's negotiating team (auditors, industrial engineers, production personnel, price analysis, etc.).

Although the profit objective is developed element by element, no attempt is made to negotiate the profit dollars for the contract in this manner. As in any negotiation or bargaining process, the actions of the negotiator must be unencumbered (within a practical range) to trade, in effect, cost reductions granted by the contractor for greater profit opportunity, and a lower overall price to the Government.

The flexibility of the weighted guidelines permits the construction of profit objectives for differing contract situations. For example, profit for the following two hypothetical contracts might be determined as shown below:

Example 1—Highly skilled engineering effort

The contract primarily involves the use of scarce engineering and scientific skills, with only minimum production support required. The contractor will not be subcontracting any portion of the effort but will procure the materials to produce the test models. The contracting officer anticipates that a CPIF contract will be negotiated and that the facilities used will be those owned by the contractor. In his particular speciality area the contractor is a recognized leader; his performance on other contracts involving similar challenging work has been outstanding.

Given these general conditions a profit objective for this situation might be developed as follows:

EXAMPLE 1

	Factor selected	Cost estimate	Profit objective	
			Dollars	Percent
Contractor's input to total performance:				
Direct materials.....	3	\$100	\$3	.....
Engineering labor.....	14	400	56	.....
Engineering overhead.....	8	400	32	.....
Manufacturing labor.....	8	100	8	.....
Manufacturing overhead.....	4	100	4	.....
G. & A. expenses.....	8	50	4	.....
Total.....		1,150	107	9.3
Contractor's assumption of contract cost risk: CPIF (1 to 2 percent).....				2.0
Record of contractor's performance.....				2.0
Selected factors.....				1.0
Special profit consideration.....				
Total profit objective (percent).....				14.3
Total profit objective dollars (14.3 percent times \$1,150).....			164.45	

Example 2—Production contract—Average effort

The production of a manufactured unit, within the existing state of the art, is the subject of this contract. The contractor has produced a quantity of these items under a previous contract. His costs were below the anticipated level and the quality and schedule provisions were adequately achieved. In analyzing the effort involved, the procurement team has determined that normal production techniques will be employed and that the engineering support will be primarily of a sustaining effort nature. Subcontracting will approximate this industry's average and a fairly large portion of the cost will be expended in purchasing material to produce the end item. About one-half of the contractor's plant is Government-owned and contains a significant amount of Government equipment. The contractor is rated as an efficient producer; his performance on other

contracts has been above average. In view of his past cost experience, the reasonableness of his current estimate, and the relative difficulty of the task to be accomplished on this contract, the negotiating team has concluded that a FPI contract would be appropriate for this procurement. The objective developed is as follows:

EXAMPLE 2

	Factor selected	Cost estimate	Profit objective	
			Dollars	Percent
Contractor's input to total performance:				
Direct materials:				
Purchased parts.....	2	\$100	\$2	.....
Subcontracted items.....	3	300	3	.....
Other materials.....	1	100	1	.....
Engineering labor.....	10	200	20	.....
Engineering overhead.....	6	200	12	.....
Manufacturing labor.....	7	800	56	.....
Manufacturing overhead.....	5	800	40	.....
G. & A. expenses.....	6	250	15	.....
Total.....		2,750	149	5.4
Contractor's assumption of contract cost risk: FPI (2 to 4 percent).....				3.0
Record of contractor's performance.....				+1.0
Selected factors.....				-1.0
Special profit consideration.....				
Total profit objective percent.....				8.4
Total profit objective dollars (8.4 percent times \$2,750).....			231	

Profit factors	Weight ranges
Contractor's input to total performance:	
Direct materials:	
Purchased parts.....	1 to 4 percent.
Subcontracted items.....	1 to 5 percent.
Other materials.....	1 to 4 percent.
Engineering labor.....	9 to 15 percent.
Engineering overhead.....	6 to 9 percent.
Manufacturing labor.....	5 to 9 percent.
Manufacturing overhead.....	4 to 7 percent.
General and administrative.....	6 to 8 percent.
Contractor's assumption of contract cost risk.....	0 to 7 percent.
Type of contract.....	.....
Reasonableness of cost estimate.....	.....
Difficulty of contract task.....	.....
Record of contractor's performance.....	-2 to +2 percent.
Small business participation.....	.....
Management.....	.....
Cost efficiency.....	.....
Reliability of cost estimates.....	.....
Value engineering accomplishments.....	.....
Timely deliveries.....	.....
Quality of product.....	.....
Inventive and developmental contributions.....	.....
Labor surplus area participation.....	.....
Selected factors.....	-2 to +2 percent.
Sources of resources:	
Government or contractor source of financial and material resources.....	.....
Special achievement.....	.....
Other.....	.....
Special profit consideration.....	.....

Mr. MALLOY. Mr. Chairman, the primary purpose of the weighted guidelines was to better relate profits to the risks involved in individual contracts. We feel that it has been quite successful in doing that. Before the weighted guidelines were used, we had a profit policy that told our contracting officers to relate profits to risks, but it did not provide specific guidance to them. We were not always getting the results we desired. The weighted guidelines policy really quantified the concepts that are basic to profit policy.

TRUTH IN NEGOTIATIONS ACT

Mr. FLOOD. Mr. Secretary, will you review the accomplishments during the past year under the Truth in Negotiations Act, particularly in the area of the total amount of contracts audited, the recoveries made, and the percentage of the face value of those contracts where defective cost or pricing data findings were made?

Mr. SHILLITO. Yes, sir. I think Mr. Malloy can cover some of that.

Mr. FLOOD. We want that in the record.

(The information follows:)

DCCA has continued to examine contractors' books looking for evidence of defective pricing in cost proposal submissions. Training efforts have been conducted to provide auditors with a background in the requirements of the law and the overall audit approach. Audit activity in this area has increased. During fiscal year 1968, the audit effort was double that of the prior 2 fiscal years. The audit effort planned for fiscal year 1969 substantially exceeds that expended in the preceding 3 years. For the 3 fiscal years, 1966, 1967, and 1968, 953 contracts were reviewed for evidence of the submission of defective data. It is expected that the contracts examined in fiscal year 1969 alone, will exceed this number. The table below summarizes reviews for defective data through fiscal year 1968:

DEFECTIVE PRICING ACTIVITY—FISCAL YEARS 1966, 1967, 1968

(Dollar amounts in millions)

	Amount	Number
Contracts examined.....	\$9,090	953
Reports of possible defective data.....	29.5	142
Reports of defective data acted upon.....	10.5	60
Net savings realized.....	3.4	

Thus, in the examination of cost or pricing data submitted by contractors incident to \$9 billion in contracts, Defense auditors found evidence of possible defective pricing data totaling \$29.5 million. The contracting officers have completed action on \$10.5 million of the auditors' findings by either seeking a price adjustment or determining that no defective data was involved. Price adjustments have been obtained by negotiation with contractors or as a result of Armed Services Board of Contract Appeals decisions. These adjustments are made in the form of refunds where Government payments had previously been made to the contractor or in a reduction in the contract prices where the work is still in progress. Net savings obtained by the Government through June 30, 1968, are \$3.4 million.

AVAILABILITY OF HISTORICAL DATA

Mr. FLOOD. Are contractors now making historical data available even though such data was not used in preparation of cost proposals? Last year the committee was advised that this was not being done in all of the cases even though the ASPR provisions had required this for a long time.

Mr. SHILLITO. We have a few instances involving waivers, as you know.

Mr. MALLOY. Mr. Chairman, we still continue to have cases where we have disagreements with contractors on the providing of historical data which was not used in the pricing. However, our people have been told that this is pertinent data, that it comes within the purview of Public Law 87-653 and we are insisting on getting it now where we need it.

Mr. FLOOD. Mr. Lipscomb, do you have any questions on Defense profits?

Mr. LIPSCOMB. No, Mr. Chairman.

MATERIEL CONTROL IN SOUTHEAST ASIA

Mr. FLOOD. Now let us talk about materiel control in Southeast Asia. There has been a lot of talk about that. Last year we discussed with former Secretary Morris, and believe me we discussed it with him, the establishment of the so-called Pacific Utilization and Redistribution Agency, designated PURA. As we understand it, the primary purpose of this organization is to conduct a systematic physical inventory of stocks in Vietnam.

This year the committee discussed with many of the military witnesses the overstockage of supplies and spare parts in Vietnam and the operation of the Project for the Utilization and Redistribution of Materiel, designated PURM. Army officials testified to an overstockage of about \$621 million at the time the fiscal year 1970 budget was prepared. Mr. Secretary, this does not agree with the \$326 million worth of excess stocks for all the services which have been redistributed or are being screened, which you mention on page 22 of your statement, and the \$424 million reported to the committee on March 4, 1969.

VARIANCE IN REPORTED SURPLUS STOCKS

What is the explanation for this variance in total amounts?

Mr. SHILLITO. It impresses us very much, Mr. Chairman.

Mr. FLOOD. How do you explain that?

Mr. SHILLITO. I am going to let Mr. Riley give you the details on this. We may have to give you additional specific quantitative information for the record when he is through, which we will do.

Mr. FLOOD. We want the explanation. We don't care who does it or how it is done.

Mr. RILEY. I suspect the \$600 million figure given to you by the Army sometime ago was an estimate. I do not think the Army completed taking their inventory in Vietnam until January of this year.

Mr. FLOOD. It was around \$621 million.

Mr. RILEY. The figure may be the best estimate at that time. We can straighten these figures out.

Mr. FLOOD. You are right, the testimony using the figure \$621 million was declared by them to be an estimate at the time they gave it.

Mr. RILEY. Yes, sir. They had not finished their inventory at that time. We can straighten this out. Our figures are the latest figures available from the system.

(The information follows:)

After the inventory was completed and their new computer programs became operational at the inventory control center in Vietnam, the Army was able to provide us with more reliable dollar-value stratifications of the bulk of their inventory. We have just received their third quarter report and my information is based on their March 31, 1969, figures. The Army's inventory, exclusive of major end items and certain air items, is valued at \$476 million, of which \$151 million is considered to be excess. This is down from their December 31, 1968, figure of \$484 million. The Army will complete an inventory of air items in July 1969. The Navy's inventory in Vietnam carries a dollar value of \$46 million, of which about \$13 million is excess. Likewise, the Marine Corps inventories currently on hand carry a value of \$80 million with about \$16 million in an excess position. The Marines have also just completed an inventory of the assets in their Vietnam depot. The Air Force inventory of supplies and equipment at their bases in Vietnam was valued at \$147 million at the end of April 1969. We don't have a figure for their excesses

at this point. In summary, the value of these stocks in-country is approximately \$749 million with about \$180 million currently considered as excess. This excess inventory will eventually be screened for redistribution within Vietnam or reported to PURA for utilization elsewhere in the Pacific area.

OVERSTOCKAGE IN VIETNAM

Mr. FLOOD. Will you provide for the record a schedule showing by services the overstockage which has been disclosed thus far, the current estimate of total overstockage, and the amount redistributed? We would like for you to show this information by types of commodities.

Mr. SHLLITO. Yes, sir.
(The information follows:)

We do not have all of the information broken down as you have stated. The Army has just gotten into financial inventory accounting this year. The other services do not have this type of stratification as yet, although the Air Force is scheduled to begin it the 1st of July this year. I think the information we have, however, will provide an adequate picture of our overstockage and what has been done to reduce it. The Army figures for secondary items, as of the end of March are: (These are local Vietnam excesses which will be screened for utilization worldwide.)

Materiel category:	<i>Excess (millions)</i>
Ground forces support materiel.....	\$51.4
General supplies.....	24.4
Clothing and textiles.....	10.5
Electronics materiel.....	22.6
Air materiel.....	2.7
Combat and automotive materiel.....	13.0
Missile materiel.....	1.0
Weapons and fire control materiel.....	5.1
Special weapons and chemical.....	.2
Petroleum and allied products.....	4.7
Industrial supplies.....	10.0
Non-standard	5.1
Total	151.0

This figure reflects the continuing emphasis placed on disposing of identified excess. By way of comparison, these excesses were estimated to be valued at approximately \$570 million in July 1967, and in December 1968, the figure was \$253 million.

In the case of the other services, the Navy, which operates only one facility at Da Nang has \$13 million in excess. The majority (\$11.6 million) of this is in the category of repair parts, and other consumables. As Mr. Riley said, comparable figures for Air Force excesses are not currently available. The Marines have about \$16 million excess in their stocks at Da Nang.

Considering redistribution of excesses, I'd like to outline some of the service programs aimed at making maximum use of excess materiel in the Pacific. The Air Force has an agency known as the Pacific Asset Redistribution Center (PARC) located in Thailand (Don Maung RTAFB) which was established in March 1967. It was designed to report and redistribute base funded excesses throughout PACAF. In October 1967, they established a project, as part of an overall supply improvement program, to identify and redistribute centrally procured excesses on a worldwide basis, report base funded equipment excesses to PARC and reconcile depot/base requisitions. This program, completed in April 1968, resulted in \$41 million worth of equipment reported for redistribution. \$53 million of the centrally procured equipment was returned to the Conus inventory managers. A similar program was established for centrally procured supplies and resulted in \$40.9 million being redistributed to PACAF bases, returned to AFLO, or disposed of. A follow-on program for equipment excesses was completed in March of this year, resulting in redistribution of \$20 million and disposal of \$1 million. Since the beginning of this program the Air Force has

redistributed to other Air Force bases \$72 million and returned \$86 million to their depots in Conus. The Navy has redistributed a total of \$1 million within PACOM and an additional \$1.2 million returned to Conus during this fiscal year.

The Army began its retrograde program in mid-year 1967 in order to return to the supply system stocks which were in long supply. This materiel was shipped mostly to Okinawa and Japan, and some GSA type materiel was returned to Conus. During the period from the beginning of 1968 through the end of April of this year, the Army shipped over 181,000 short tons valued at \$311 million. In addition to these shipments, the Army has transferred to other services in Vietnam materiel valued at \$19 million during the period July 1968 through April 1969. Also, they have provided ARVN with \$2.3 million worth of supplies during February, March, and April of this year and provided \$32 million of ammunition to other users through interservice agreements.

PREVENTION OF OVERSTOCKAGE

Mr. FLOOD. As you recall, and we recall so very, very well, we had accumulated huge—and I mean huge—excesses of ammunition after the cessation of hostilities in Korea.

Mr. SHILLITO. Yes, sir.

Mr. FLOOD. Do you have any other controls in being which would prevent a recurrence of such excesses not only with respect to ammunition but to other items in the supply area? We went through this at the end of World War II. We took out the ships and dumped the stuff into the ocean and said we do not want to bring it back because it will interfere with industry. In Korea we did the same thing. Where are we this morning? Are we still fighting the wrong war?

Mr. SHILLITO. I will make one comment on that and let Mr. Riley supplement my remarks.

I am not sure as to the exact number, but we maintain roughly 327 major items to which we give what we would call intensive management. These things are continuously watched. The inventory, the production rate, the stockage levels are reviewed daily. These items are also continuously tied to various time increments as to posthostilities days in Southeast Asia.

Mr. FLOOD. When was this system imposed? You know, Mr. Secretary, this is my fourth war. This refrain sounds like Mademoiselle from Armentieres, to me. That is World War I. Is this something new?

Mr. SHILLITO. No, sir; this is in being.

Mr. FLOOD. Why doesn't it work?

Mr. SHILLITO. It works. We have not had the occasion yet to exercise a production fall off and an inventory control based on any pull back as far as Vietnam is concerned. We are deeply involved in the ordnance and major systems areas.

As we bring about anything in the way of a phaseout over there or a relocation in Vietnam the exercise of this system will come into being. I think that it will minimize the kinds of excesses about which you are so concerned.

Mr. FLOOD. Can this work only after the fact? Must this be another ex post facto thing?

Mr. SHILLITO. It can tie in closely to the PURA, too. It is an on-going living thing.

Mr. FLOOD. You know what I am talking about. My problem is this: After this can of worms in Vietnam, with the help of God, is straightened out and you apply this yardstick and come back

with these staggering figures of excesses and say "sorry," this is what worries us.

Mr. SHILLITO. It is a very valid concern.

Mr. RILEY. We are just as concerned about this as you are.

Mr. FLOOD. You don't look it.

Mr. RILEY. Let us take ammunition first. I do not believe we have any excess ammunition now unless it might be in a few types of obsolete items we are not using.

Mr. FLOOD. This is probably so.

Mr. RILEY. Our ammunition program is practically run out of our office where every item we are using in Vietnam is reviewed and the production of items is kept just a little above consumption.

Mr. FLOOD. To show you the other side of the coin, there has been some criticism the other way.

Mr. RILEY. That is right. It may be too tight a control. On 300 some odd other major items such as trucks and tractors we have the same kind of intensive management going on. When you get into the secondary items, the repair parts and the components, we have a system whereby the Departments are required to get monthly inventory reviews of every one of these items that has an annual procurement volume of a million dollars or more. This comes to my office for review. These review systems were not used in any prior war that I know of.

Mr. FLOOD. You don't want to bet me a hat on that? How long have you been around here? Betting hats with Flood, if you are from the Department of Defense is a very expensive thing.

Mr. RILEY. I have been in the supply business since 1958 and we have controls now that we never had before.

Mr. SHILLITO. Mr. Chairman, I would not like to suggest that come the cessation of hostilities, and hopefully in the not too distant future that we will not have excesses. I do not want to mislead you.

Mr. FLOOD. I am not suggesting that. I am talking about an excessive excess.

Mr. SHILLITO. Yes, sir. We do want to insure you that we are going to have a very well-managed control of that which is in our inventory system in Southeast Asia. We would be kidding you if we were to suggest that we are not going to have excesses.

Mr. FLOOD. I do not want to see another fleet of ships going into the ocean and start throwing ammo overboard.

Mr. SHILLITO. Yes, sir.

EXCESS SUPPLIES IN VIETNAM

Mr. LIPSCOMB. Mr. Secretary, you say you do not want to suggest that we will have any excess, and I know how hard everyone is working on this. But do you see any excess there now?

Mr. SHILLITO. Mr. Lipscomb, we are bringing a lot of things back from there right now, and redistributing them daily in the interest of avoiding this. I would have to say yes, we are seeing some excesses or we would not be bringing them back.

USE OF EXCESS SUPPLIES FOR VIETNAMIZATION PROGRAM

Mr. LIPSCOMB. What coordination is there between the excesses you observe, and the equipping of the South Vietnamese forces? In other words, what is going into the Vietnamizing of the effort?

Mr. SHILLITO. A portion of the material is moving into the modernization of the South Vietnamese forces.

Mr. LIPSCOMB. We do not really know.

Mr. SHILLITO. I cannot give you the right figures.

Mr. LIPSCOMB. We know how much has been requested for procurement.

Mr. SHILLITO. Yes, sir.

Mr. LIPSCOMB. I do not think we are aware of any excesses.

Mr. SHILLITO. These are not the things, to my knowledge, that are identified as excesses, because if they are needed by the South Vietnamese we are not calling these excesses.

Mr. LIPSCOMB. We are not sending anything to Okinawa for redistribution that is on the procurement list for the South Vietnamese in either Phase I or Phase II? Is this watched?

Mr. RILEY. Yes. We are not supposed to be bringing any material out of Vietnam for which there is a requirement in Vietnam either for our own forces or the Vietnamese.

Mr. FLOOD. Yes, but Mr. Lipscomb's point is we did in Korea. In some cases we turned the ships around and brought them back. That is what he is talking about.

Mr. LIPSCOMB. Mr. Riley, you said there is no excess of ammunition in Vietnam now.

Mr. RILEY. I am almost confident of that.

Mr. LIPSCOMB. Is there any shortage?

Mr. RILEY. No, sir.

EFFECT OF DANANG FIRE ON AMMUNITION INVENTORY

Mr. LIPSCOMB. How did you treat the loss at Danang of about \$85 million worth of ammunition? Was that excess?

Mr. RILEY. No, sir.

Mr. SHILLITO. The inventory position was significant.

Mr. RILEY. We have a pipeline of ammunition going in all the time. Some shortages to the authorized theater levels were caused by the fire at Danang. These are being replaced by the pipeline and temporary fill from other locations.

Mr. LIPSCOMB. You mean you replaced \$85 million worth of ammunition?

Mr. SHILLITO. No, the entire amount has not been replaced on the ground. As Mr. Riley indicated the pipeline has replaced some of the losses. They are authorized 60 days of supply in Vietnam to provide a safety level for such contingencies. Of course, this loss ate into that level.

Mr. LIPSCOMB. What was done? Did you cut the 60 days to 40 days?

Mr. SHILLITO. That is the way it ended up. You end up with less days of inventory because of that fire.

Mr. LIPSCOMB. You say there is no shortage, and you said there is no excess ammunition. That fire happened a month or 45 days ago.

Mr. RILEY. I am talking overall. The \$85 million loss did put a dent in our inventory at that particular time.

Assuming that \$85 million was a part of the required level we would have to make up some portion of it by speeding up the pipeline.

Mr. SHILLITO. It might be worth just taking a moment and explaining this pipeline. In this pipeline moving back from Vietnam there are so many days of inventory incountry.

Then you have so many days of shipping time and redistribution within Vietnam. Then you have so many days of shipping time incountry in the United States, and so many days back in the production line in CONUS. You have an inventory incountry over there that the particular fire you referred to did eat into.

We do not consider that an excess.

Mr. LIPSCOMB. I think we understand this pretty well on the committee. It is of interest to us now how you replaced the \$85 million worth of ammunition at this time.

Mr. SHILLITO. That has not all been replaced yet.

LEVEL OF AMMUNITION IN SOUTHEAST ASIA

Mr. LIPSCOMB. Then my question is, is there either an excess or shortage of ammunition in Southeast Asia or South Vietnam at the moment?

Mr. RILEY. We can provide for the record exactly how that \$85 million is intended to be dealt with.

(The information follows:)

There is a shortage to the theater levels but not of a magnitude to affect the support of operations. Although the loss is significant, the overall levels are adequate to assure continued support. The pipeline is being increased to offset the shortage.

Mr. SHILLITO. I guess we would have to say, assuming that our inventory numbers are right, and I feel that they are, they have been analyzed enough, we would have to be short our inventory position as it now stands temporarily.

Mr. LIPSCOMB. Under your war plan if you had a 60-day requirement and you lost \$85 million worth of ammunition and you therefore reduced your requirement to say, 45 days, then you are short 15 days of supply.

Mr. RILEY. We would have to assume since most of those would be good rounds for the forces over there that there was a temporary drawdown on our stock position.

SCREENING AND REDISTRIBUTION OF OUR EXCESS MATERIEL

Mr. LIPSCOMB. As long as you are going to straighten out the PURA figures between what we were told earlier and your testimony of today, maybe you would like to clarify what was said last year and this statement of the Secretary's, "Since the program started 13 months ago . . ." The program, we thought, started in November 1967.

Mr. RILEY. I do not recall the testimony last year but I believe the November date was the date when Secretary McNamara approved the decision to set up the agency, and get the whole program started.

The actual implementation of the program has only been going for about 13 months.

Mr. LIPSCOMB. A year ago, around April 1, 1968, it was reported that there were 431,000 items, 72,000 tons, with a value of almost \$123 million that have been transferred from Vietnam to Okinawa for screening and redistribution. According to the statement before us now it says \$149 million worth of material has been redistributed.

Mr. RILEY. Another \$177 million are presently being screened. This is a continuing process.

After an item is screened, if there is no requirement for it that item is identified back to the continental United States for further screening.

Mr. LIPSCOMB. I believe it is a good program. I am sure the committee does, too. But, I think we need a little analysis of the figures, because, a fact sheet, a late statement presented to the committee March 4, 1969, says, "During the period April 1, to December 31, 1968, PURA screened \$424 million of reported excess material and redistributed \$76 million."

Mr. RILEY. There is nothing wrong with that. During that period \$424 million worth of material was screened and then we gave you a figure of what was redistributed. Now we are saying since the program began a total of \$149 million has been redistributed. At the present time there are now \$177 million worth of material being screened to see if there can be any distribution made of it.

If there is no requirement for it, it will be returned to the service who originally declared the excess and they will make appropriate disposition. There is nothing wrong with the figures.

Mr. LIPSCOMB. We have a conflict in our figures.

Mr. FLOOD. We had a conflict, too, on the Army figures even though they are only estimates. So he has to straighten the whole matter out, because PURA is the operating agency for PURM.

Mr. RILEY. That is right.

(Clerks note: The following statement was provided for the record by Mr. Riley.)

I don't recall the testimony last year, but the November date was the date when Secretary McNamara directed that such a program be established. This was done in recognition of the fact that the speed and magnitude of the Vietnam buildup unavoidably resulted in the accumulation of some imbalances and excesses in our supply inventories. Perhaps it would be useful for me to outline briefly the history of this program and to outline its substantial accomplishments to date. I believe this will assist also in clearing up some of the figures which have been provided by the services and which seem to have been causing some confusion. Secretary McNamara's memorandum of November 24, 1967, required the establishment of a program for the utilization and redistribution of excesses of the military services at all of their bases throughout the Pacific area. He further designated the Army as the executive agent for us, and instructed CINCPAC to set up a special agency to supervise the redistribution of this materiel in the Pacific. This agency, which is known as the Pacific Utilization and Redistribution Agency (PURA), is located on Okinawa and operates under the direction of the Second Logistics Command. The CINCPAC plan of operation, which was approved by us on March 1, 1968, was implemented on a test basis on March 8. Statistics on the operation have been accumulated since April 1, 1968. Thus we have about 13 months of data available at this time.

Briefly, this is how the system works. All Pacific activities report both their excesses and their requirements to PURA on an automated basis. These in turn are matched on the central computer at Okinawa, to satisfy any Pacificwide needs regardless of service. Materiel which cannot be used through this matching

process is reported to the Conus inventory managers for possible use, worldwide. Any residue for which there is no DOD requirement is then disposed of in accordance with our normal disposal procedures.

In addition, we have supplemented the normal procedures to facilitate increased utilization, particularly of high dollar value lots of materiel. Specifically, in July 1968, we set up special off-line screening procedures for bulk lot quantities on an expedited basis. Under these procedures we have screened \$116 million worth of materiel which has resulted in actual redistribution and use of assets valued at \$46 million. In December 1968, we developed a plan to test an intensified merchandising program in which high dollar value items (\$10,000/FSN) are broadcast in a catalog to all potential customers. The first catalog was distributed in February 1969, and has been published monthly since then. This intensified marketing has generated sales as of the end of April amounting to a little over \$3 million. Since its beginning the total PURA program has shown the following results:

PURA OPERATIONS

(In millions of dollars; cumulative)

	1st quarter, fiscal year 1968	2d quarter, fiscal year 1969	3d quarter, fiscal year 1969	April 1969
Excesses reported for screening.....	321	424	595	650
Excesses redistributed.....	27	76	138	149
Excesses released back to owning service.....	102	253	390	324
Presently being screened.....				177

I would like to point out that the excess materiel reported to PURA consists almost entirely of secondary items, and does not include the major end items and weapon systems such as planes, tanks, trucks, and so forth. These major items are not included because basically these are not in an excess position. As long as these items are economically repairable, they are repaired and sent back to use. Uneconomically repairable items are scrapped and sold. The predominance of the usable excesses, both current and those which would be generated at the cessation of hostilities, fall in the category of secondary items. Assets of the major end items which may become excess to Vietnam requirements and are usable will be redistributed to satisfy other requirements, both local and worldwide.

In addition, to preclude any further excesses from developing in Vietnam we established other programs in September 1968 which would actually cancel certain shipments destined for Vietnam or to frustrate shipments at the ports. This is a selective program—called Project Stop See—covers bulky, space-eating commodities in adequate supply in Vietnam. As of May 1969, Project Stop See has been instrumental in cancelling \$262 million worth of requisitions and actually frustrating shipments for about \$12 million worth of these supplies.

COST OF SHIPPING AMMUNITION TO VIETNAM

Mr. LIPSCOMB. The Marines asked for \$10 million in supplemental funds to ship replacement ammunition to make up for the loss at DaNang. The Marine loss amounted to about \$50 million. Does it take \$10 million to ship \$50 million worth of ammunition to Vietnam?

Mr. RILEY. Ammunition is very expensive to ship. It is heavy, it is bulky and it is expensive to ship. That is not too far off, a ratio of about 5 to 1.

Mr. LIPSCOMB. How do you move it?

Mr. RILEY. By ship.

Mr. FLOOD. What kind of ship?

Mr. RILEY. A special ammo ship.

Mr. FLOOD. I never heard that figure before.

Mr. RILEY. It is very expensive, but we will check the figure for you.

(The information follows:)

I understand that the Marine Corps request for supplemental funds relating to a figure of \$10 million was not intended to represent the cost of shipping ammunition to replace that which was lost in the Da Nang fire. The Marine Corps estimate of the transportation cost to replace the lost ammunition was \$5.2 million.

The cost for moving ammunition from U.S. production plants through the east and west coasts to South Vietnam averages \$152 per short ton not including off-loading at the port in South Vietnam and in country transportation. This represents approximately 9 percent of the dollar value of the ammunition. The total cost including offloading and handling in South Vietnam should, therefore, approximate some 10 percent. Therefore, the cost to move \$50 million worth of ammunition should be about \$5 million.

SHIPMENT OF SUPPLIES OUT OF VIETNAM

Mr. MINSHALL. A moment ago, Mr. Secretary, you mentioned that you reversed your supply process at least to a degree of bringing some of the material out of South Vietnam.

Mr. SHILLITO. Yes, sir.

Mr. MINSHALL. When did that start?

Mr. SHILLITO. As Mr. Riley mentioned here, the program goes back a year, plus, but it is really just starting to build up steam and really started becoming fairly active about 13 months ago.

Mr. MINSHALL. What kind of materiel are you taking out of South Vietnam and where is it going?

Mr. SHILLITO. A significant portion of it is coming back to the States. Do you want to elaborate?

Mr. RILEY. Most of it is general supplies. It is being screened at Okinawa and put into condition for further identification and then reported back to the United States to see if there is a need any place in the United States or in other theaters. The inventory control points back here are screening and giving shipping instructions to Okinawa.

Mr. MINSHALL. What are the general supplies you are bringing in?

Mr. RILEY. It could be clothing. It could be repair parts.

Mr. MINSHALL. It could be. What is it?

Mr. RILEY. That is what it is. General supplies covers all these categories, kitchen equipment, feeding equipment, repair parts.

Mr. MINSHALL. It is all coming back to Okinawa as a redistribution center.

Mr. RILEY. Not all of it. If there is a need identified for the equipment back in Conus, it will be shipped directly back here.

Mr. FLOOD. There is equipment coming to Conus?

Mr. RILEY. Yes, sir.

Mr. MINSHALL. You say build up steam; what are we talking about in dollars and in equipment and supplies?

Mr. RILEY. I do not know the dollars now. The last figures I recall we are moving about 60,000 tons a month out of Vietnam.

Mr. MINSHALL. Of construction and general type equipment?

Mr. RILEY. Yes, sir.

Mr. FLOOD. Is that a lot?

Mr. RILEY. We have been putting in about 800,000 tons a month. So it is not much yet.

Mr. MINSHALL. What is the dollar amount and the tonnage?

(The information follows:)

The estimated dollar value of the cargo retrograded from South Vietnam to both Continental United States as well as other areas in the Pacific Command is as follows:

RETROGRADE CARGO FROM SOUTH VIETNAM

(In millions of dollars)

	Surface	Air	Total
February 1969.....	82.5	12.0	94.5
March 1969.....	109.1	13.5	122.6
April 1969.....	74.6	15.0	89.6
May 1969 (estimated).....	73.5	15.0	88.5

The volume of cargo retrograded from South Vietnam to both Continental United States as well as other areas in the Pacific Command is as follows:

RETROGRADE CARGO FROM SOUTH VIETNAM

(In thousands of short tons)

	Surface	Air	Total
February 1969.....	47.5	8	55.5
March 1969.....	68.3	9	77.3
April 1969.....	43.4	10	53.4
May 1969 (estimated).....	44.6	10	54.6
Average.....			60.2

Mr. FLOOD. Mr. Rhodes.

TRANSFER OF MATERIEL TO SOUTH VIETNAMESE

Mr. RHODES. Mr. Secretary, could you give us some idea as to how the Vietnamization of the war is being conducted as to materiel? Are we giving forces in South Vietnam new materiel fresh from the United States or are we transferring to them materiel which had previously been in the stocks of the units now in Vietnam?

Mr. SHILLITO. Many of the materials that are in inventory in Vietnam now are being used to assist in the development of the Vietnamese capabilities. At the same time we are moving directly some specific items, rifles for example, to the South Vietnamese from the States. In general, the ARVN forces are being supported in three ways: (a) Direct from assembly lines in Conus as in the case of rifles, PRC-25 radios and some vehicles; (b) from U.S. units demobilized in Vietnam—their materiel is turned over directly to the ARVN forces on a selective unit basis as in artillery units and later for held companies; (c) requisitioning on regular U.S. service supply channels.

Mr. RHODES. Are there any bookkeeping entries made when you transfer materiel to the ARVN forces?

Mr. SHILLITO. Yes. I would emphasize here we just had a team in Hawaii this last week primarily concerned with the logistic support with the transfer and with the control of the kind of materials you are talking about. I must say in all honesty I have not had a chance to really go over in detail with that team their recommendations and the controls that they want to recommend.

TRANSFER OF MATERIEL TO MILITARY ASSISTANCE PROGRAM

Mr. RILEY. The controls will be established under the military assistance program so that we know what is transferred by the items and the dollar value.

Mr. RHODES. Ordinarily as I recall, when you transferred equipment from the active inventory into MPA a credit was generated which the DOD could use anyway it saw fit without further appropriation. Is this true of materiel which is being transferred to the forces of South Vietnam? Does this generate a credit which can then be used by the DOD for other purposes?

Mr. RILEY. I do not know the answer to that. We would have to get that for the record.

Mr. RHODES. I wish you would because it is rather important. As I used to complain at the time when I was on that other subcommittee, it was to the advantage always of the active forces to transfer materiel to MAP whether it was going to be transferred or not because they were able to get a beautiful slush fund they could use as desired.

Mr. FLOOD. No doubt about it.

Mr. RHODES. I hope that is not being done with the Vietnamization of this war. I am all for the program, but I hope we do it correctly.

Mr. FLOOD. I will bet you it is being done.

Mr. RHODES. I am sure it is.

(The information follows:)

The materiel furnished to ARVN is financed through direct service funding following normal U.S. service budget submissions. There is no credit generation other than in normal stock fund operation for secondary items.

PILFERAGE IN VIETNAM

Mr. FLOOD. Mr. Secretary, when we set up our bases in Morocco, North Africa, the figures that we got on pilferage were simply shocking to us at that time. We were pretty naive because then we went to Korea, and the figures we got from Korea on pilferage made the Moroccans look like boys. Then we went to Vietnam and the figures we are getting there make the Moroccans and Koreans look like amateurs. I remember at a certain BOQ in Vietnam not long ago four officers took me into a bedroom where a brother officer was sleeping and they called in one of their houseboys who took the sheet out from under the guy without waking him up. They bet me he would do it and he did. During the hearings this year we discussed with the services this business of theft of equipment, supplies, spare parts, exchange commodities, and the like. It is readily known that these thefts are very prevalent in South Vietnam. Do you have any estimate of the total amount of materiel which has been stolen thus far, even a ballpark figure?

Mr. SHILLITO. Mr. Chairman, I do not. I will attempt to see what we have.

Mr. RILEY. OSD Manpower Office made two reviews of this problem in Vietnam and we will check those studies.

Mr. FLOOD. We will ask them to give it to you so you can provide it for the record.

Mr. RILEY. Yes, sir.

Mr. SHILLITO. I think you are talking about our PX's in your comments?

Mr. FLOOD. All areas, not just the PX's.
(The information follows:)

A reporting system was imposed upon the U.S. commander in South Vietnam in early 1967 and later discontinued because a review by the Army Audit Agency in October 1967, indicated that there was no concrete evidence of large scale diversions. The Army Audit Agency also found that while significant amounts of material were unaccounted for at the various supply and transportation activities reviewed, most of the discrepancies were due to poor documentation. Reliable figures, however, are available with respect to post exchange (PX) supplies because of the dollar accountability and sales reporting at retail outlets that can be compared with dollar value of shipments sent into South Vietnam. The post exchange losses include as a single figure the total accountability losses at the depots, losses that occur from transportation from depots to retail outlets, and accountability losses at the retail outlets. Separate figures are maintained for breakage and spoilage. The accountability losses are due to all causes and are not related solely to pilferage or other unlawful diversions. The PX losses are as follows:

ACCOUNTABILITY LOSSES

Year	Amount at cost (in millions)	Percent to sales
Fiscal year 1967.....	\$4.1	2.7
Fiscal year 1968.....	8.3	2.6
Fiscal year 1969.....	9.0	2.5

The above percentages of accountability losses at cost compare with approximately 1 percent losses worldwide in all areas other than South Vietnam.

Mr. FLOOD. Would you list for the record by types the amount of equipment, supplies and/or commodities.

Mr. SHILLITO. Pilferage?

Mr. FLOOD. Yes.

Mr. SHILLITO. We will try.

(The information follows:)

A review of stolen property reports from Vietnam reveals that the most costly and most commonly recurring items include: Vehicles, compressors, air conditioners, generators, vehicle tools and parts, and communications equipment (wire, transformers, receivers, tubes, and so forth). The very nature of the combat environment and undetected pilferage make it difficult to develop dollar value for losses due to pilferage from supply system storage locations and Government materiel in the hands of troops; however, the reliable data furnished in answering the question on pilferage from PX stocks provide a basis for estimating pilferage from U.S. Government stocks.

Incident reports on stolen Government materiel do indicate that our forces are successful in recovering much of the stolen property. For example, of the \$13 million reported stolen from Army activities in Vietnam during calendar year 1968, over half (53 percent) of the property was recovered by military police.

PROCEDURES TO REDUCE PILFERAGE

Mr. FLOOD. In view of this open and notorious situation have you recently implemented any new procedures to stop or reduce the thefts?

Mr. RILEY. Yes, sir.

We set up a reporting system checking the manifest against the receipts into the warehouse, the trucking tickets of material loaded from the warehouse.

Mr. FLOOD. Expand on that for the record.

(The information follows:)

The following actions have been taken:

(a) Joint harbor patrols (U.S. Military Police, South Vietnamese National and Military Police, Harbor Police, and customs authorities) are assigned to port areas.

(b) Military guards are placed at holds of ships for contract discharge operations.

(c) Roving security patrols are used to supplement static guards inside port areas.

(d) Lighting systems have been installed around port perimeters and in storage areas.

(e) New and more stringent security procedures are in effect at the Saigon Port which include obtaining personal data and fingerprints from all laborers, the issuance of passes with different colored backgrounds to better identify the wearer (for example, direct hire, contractor, and transient labor) and security investigations of itinerant workers.

(f) Increased use has been made of locked and sealed containers to move cargo through to depot or ultimate consignee. Also, palletized and boxed cargo is banded to truck beds.

(g) Use is made of U.S. military drivers and trucks rather than civilians to deliver PX supplies and other sensitive or readily marketable commodities.

(h) Tighter controls have been established over truck movements, to include trip ticket controls, road patrols, radio reports of arrivals and departures, accounting for loading and offloading times, helicopter surveillance, and more highway check points.

(i) Improved fencing, lighting, and guarding have been established at depots and supply points.

(j) Tighter controls are maintained over cargo documentation and cargo accounting.

(k) Improved liaison is maintained with Vietnamese law enforcement agencies.

We believe we are making progress in reducing pilferage in all areas. As the data on PX losses indicates, losses are not going up commensurate with increased shipments and sales of PX goods. In fact our most recent data from Saigon indicates that pilferage losses between the port to depot have decreased dramatically. In calendar year 1967, losses in this area amounted to \$4.8 million. During calendar year 1968 less than \$2 million worth of merchandise was lost in this area.

USE OF POLICE DOGS.

Mr. FLOOD. Did you use police dogs?

Mr. RILEY. Yes, sir.

Mr. FLOOD. In North Africa that is what did it. The minute we put police dogs on some non-Arab natives who were former veterans of the French Foreign Legion and sent them around, that pilferage went right down to the ground in no time. From our experience in Morocco and Korea police dogs are effective.

JOINT LOGISTICS REVIEW BOARD

On studies and analyses, the discussion of overstockage and theft of supplies leads to another question related to logistic support operations. I notice in a Pentagon news release dated May 27, 1969, that you established on March 1 a Department of Defense Joint Logistics Review Board which is charged with a broad study of all aspects of worldwide logistic support of U.S. combat forces during the Vietnam conflict. You briefly mentioned on page 22 of your statement the existence of this board. Will you tell us the reasons for this study and what you hope to accomplish with it?

NEED FOR REVIEW BOARD

Mr. SHILLITO. This is a board that was established to be something of a lessons-learned board, if you will. It is headed up by Gen. Frank Besson, who I think this committee is familiar with. He has a group of senior officers, Army, Navy, Air Force, Marine Corps, all members of the Board. He has or will have almost 200 men on his Board. He will be looking at such things as supply management in toto in Southeast Asia. He will be looking at requirements, requirements forecasting. He will be looking at procurement and production. He will be concerned with maintenance, with construction, POL, communications, ammunition, transportation, all facets of logistics dealing with the Southeast Asian conflict.

The end product of the Board which will be submitted mid third quarter next year will not only be directed toward how we might better fight a war such as the Southeast Asia war, but also will hopefully give us the benefit of lessons learned that can be applied elsewhere.

The intent is to surface any and all problems. The intent is to develop a road map for improved logistics management in any kind of conflict. We think we can benefit significantly from the results of the people who are going to be spending what will amount to almost a year in the conduct of this particular study.

Mr. FLOOD. Not what was wrong in the Argonne Forest or Gettysburg, this one.

Mr. SHILLITO. This one. Not just this one, but we are concerned about the next one.

Mr. FLOOD. That is the one I am talking about.

Mr. SHILLITO. Yes, sir.

Mr. FLOOD. What was so radically wrong with our entire logistics support operations that we had to have this study?

Mr. SHILLITO. War as we know it is a wasteful thing at best, but many people have stated that this probably is the most efficient, effective war that we have ever been involved in or anyone has been involved in.

Mr. MINSHALL. Most effective or ineffective?

Mr. SHILLITO. Effective, logistically speaking.

Mr. LIPSCOMB. Logistically.

Mr. SHILLITO. Yes, sir; logistically. At the same time, we know that there have to be and are many deficiencies logistically in the conduct of this effort, and we want to benefit from these deficiencies. That is really the only reason for this Board.

Mr. FLOOD. Why did you start at this particular time?

Mr. SHILLITO. Your thought being we should wait.

Mr. FLOOD. No, I mean why this particular time?

Mr. SHILLITO. We believe that this is an ideal time. We are still in operations over there. We can even benefit from the results of this Board in the conduct of our logistics operations should this be a continuing thing. That is the reason for this time. Maybe it should have been started earlier.

BOOZ-ALLEN CONTRACT WITH REVIEW BOARD

Mr. FLOOD. We note from the press release the management consultant firm, Booz-Allen Applied Research Inc., has been engaged to assist the Board in this study at a cost of \$315,114. Reportedly, they are to assist the Board in planning, organizing, coordinating, and controlling the study effort, principally in the study methodology, formulating, structuring, and collating of the many interrelated study elements. What about that? That is a lot of money even in the Pentagon.

Mr. SHILLITO. Yes, sir.

Mr. FLOOD. Why was a private management consultant firm employed to do the study?

Mr. SHILLITO. It was believed advisable. They are not going to do the study. The Logistics Review Board is doing the study. The outside firm is going to be concerned with surveillance of the study, with providing operations research talents and techniques to quantitatively weigh the results of this study, to bring into focus the results of this study in a way that will allow us to benefit the most. The outside objectivity was desirable. Tying this to the practical experience of the military men who are doing this study, we believed was advisable. We are talking admittedly a lot of money, \$315,000.

Looking at the total logistics operation, if we can benefit from this \$315,000, it will be money well spent.

Mr. FLOOD. I am talking about a lot of money. I was here the day that the Defense Department came here to ask for money to buy the first computer. I have seen generation after generation and miniaturization after miniaturization and this cost money in big chunks. Then they told us this would reduce personnel. Then they come back and tell us this was not so because now we need a special breed of competent personnel to handle this hardware.

With all this hardware and all these specialists we had to give \$315,000 to Booz-Allen. Somebody is going to ask us about this. Suppose somebody stands up on the floor and has the figures that I have just recited and he says to Mr. Mahon, "What about that?" and everybody in the House is going to listen for the answer.

Mr. SHILLITO. Yes, sir.

Again I repeat that in addition to the practical experience and know-how of the military people who are conducting this study, it was deemed advisable to have a few people, and we are not talking about very many—they are pretty expensive people by the way—with the capabilities of these outside people to assist in addition to the practical experience of the military.

Mr. FLOOD. You say this consultant firm is expected to know more about the operations of a military logistics support system than the military people themselves.

Mr. SHILLITO. No, sir; I did not say that.

Mr. FLOOD. What did you say?

Mr. SHILLITO. They are assisting in the planning, the organization, the quantification of the data and developing from the data statistically the meaningfulness of these data. They are not conducting the study.

LMI ASSISTANCE TO REVIEW BOARD

Mr. FLOOD. You know the Logistics Management Institute. Why wasn't this study given to that Institute? Are they making an identical study with their contract that they now have with DOD?

Mr. SHILLITO. No, sir. It was not given to them for a number of reasons. The one primary reason is that they are a very small group. It did not appear to us to make sense to bring about an increase in the professional staff of that particular organization for this short-term study effort.

FUNDS FOR BOOZ-ALLEN CONTRACT

Mr. FLOOD. Where did you get the money to do this? What appropriation did you get the money from?

Mr. SHILLITO. I will have to fill in the record on that because I cannot answer your question.

Mr. FLOOD. I do not know of any reprogramming on this. Three hundred and fifty thousand dollars is hidden under a wastebasket someplace. I do not know where you got that.

Mr. SHILLITO. I cannot answer the question.

Mr. FLOOD. Provide the answer for the record.

(The information follows:)

Funds to support the Joint Logistics Review Board (JLRB) contract with the management consultant firm Booz-Allen Applied Research, Inc., were made available through an assessment prorated among "Operations and maintenance" appropriations of each military department and DSA. Each military department contributed 30 percent of the \$315,141, while DSA contributed the remaining 10 percent. This assessment of military department appropriations is being used to fund all JLRB expenditures for travel, office equipment, printing, et cetera.

Mr. FLOOD. How much would it cost the Government to stop this contract at 10 o'clock tomorrow morning?

Mr. SHILLITO. I cannot answer that, Mr. Chairman. It has been going on now about 1 month.

Mr. FLOOD. You can answer that for the record.

Mr. SHILLITO. Probably a fifth or sixth of the total.

(The information follows:)

The terms of the contract with Booz-Allen Applied Research, Inc., include a standard provision for termination at the convenience of the Government which would make the Department of Defense liable for the cost of services rendered and expenses incurred since the award of the contract on May 19, 1969.

USE OF CONTRACT FIRMS

Mr. FLOOD. Mr. Secretary, you indicated that it is your considered opinion that the professional people in the Defense procurement operations do at least as skilled and prudent a job as the professionals in any other large segment of our economy.

Mr. SHILLITO. I certainly did.

Mr. FLOOD. I certainly share the opinion because of the many years I have been a Congressman I have been impressed with the dedication and competence of our military and civilian career personnel. There is no mistake about that. Nevertheless, we are forced to question the wisdom and the necessity of overly constant reliance placed upon non-profit and outside contracting firms for force planning, management,

procurement, and cost analyses studies. The cost of such study effort may not seem too impressive when compared with the total defense budget, but I am more concerned about studies being contracted for which would appear to be more capably or more properly done in-house.

Mr. Secretary, have you had an opportunity to look into the extent of outside contracting that is being done by the Defense Department in the areas I mentioned? We on the committee have year after year. What are we doing, passing the buck with all of our skills and competence, or just throwing bananas to more gorrillas?

Mr. SHILLITO. We cannot pass the buck because it is the Defense Department's responsibility. At the same time it does benefit us significantly to obtain some of this outside capability and this outside talent. We have problems as far as our in-house people are concerned. The kind of things they are involved with day in and day out. We have problems with the responsibility of our civil service and military people, and sometimes even the salary level of some of these people. The ability to hire and fire sometimes becomes awfully important. The need for objectivity may be most critical in looking at some of the kinds of studies we are talking about here. All of these things brought together lead us to the logic that periodically it does make sense to use outside organizations.

(Discussion off the record.)

Mr. FLOOD. On the record.

MILITARY INSTALLATIONS' ENCROACHMENT PROBLEMS

Mr. LIPSCOMB. Mr. Secretary, I assume that you had a chance to check over previous records of this committee and our position on management studies.

Mr. SHILLITO. Yes, sir.

STUDY OF MILITARY MISSIONS IN SOUTHERN CALIFORNIA

Mr. LIPSCOMB. In your statement on page 7 you say you have initiated a major study of all of our military installations in southern California and a similar study as regards our aviation installations in the Northeast section of the United States. When did you initiate this study about military institutions in southern California?

Mr. SHILLITO. Actually, Mr. Congressman, discussion relative to the southern California study started mid last year. The study was kicked off about February of this year, as I recall, sir.

It is primarily the responsibility of the Navy inasmuch as a significant portion of our facilities in southern California are under the Navy's cognizance. The Northeast study was kicked off about mid-March or the first of April. These two studies involve a significant amount of our total southern California and Northeast installations. I will supply the exact numbers for the record. In southern California I think we are talking about something like a replacement value of around \$10 billion in the installations in southern California and about \$4½ to \$5 billion in the Northeast, just the 20 some air installations in the Northeast.

Mr. LIPSCOMB. What do you define as Northeast?

Mr. SHILLITO. We are talking about the entire area from Delaware to Maine. This is the area we are looking at.

Mr. LIPSCOMB. Would that cover Westover Air Force Base and McGuire Air Force Base?

Mr. SHILLITO. Yes, sir.

Mr. LIPSCOMB. What or who inspired such a study? What is the background?

Why southern California? Why Northern United States? Why not Florida or Michigan or Georgia or the Carolinas?

Mr. SHILLITO. In our 500 and —

Mr. LIPSCOMB. Are you planning on moving the Navy installations in California to the Midwest or somewhere else?

Mr. SHILLITO. Of our 500 some odd major installations in the past year we have had encroachment problems at almost half of them. There has been a preponderance of encroachment problems in one form or another in southern California and in the Northeast. We have similar problems in the Southwest and also the Southeast. I would expect that we will be having, in fact, it is planned, that we will be going into other studies in other areas. Other than the severity of the encroachment problem, there is no reason why we picked one area versus another. This may be as important a subject as we are talking about right now, this encroachment problem. Historically we have operated in the environment whereby when we had to have land or shoreline or air space, whatever the emergency, we could get it. With the pressures that we are faced with today there is little doubt in our mind but what in years to come the environment is not going to be that way. So we find ourselves looking ahead to the 1980-85 time period, recognizing that we are going to have to do something about our entire military installation complex. In southern California you can cover the gamut from San Diego, to Pendleton, to El Toro.

NEED FOR STUDY

Mr. LIPSCOMB. Who is asking for the study?

Mr. SHILLITO. Our people are having problems in this area.

Mr. LIPSCOMB. What do you mean your people are having problems?

Mr. SHILLITO. Our Defense people are having problems in these areas.

Mr. LIPSCOMB. In what regard are they having problems?

Mr. SHILLITO. The counties of southern California have made a study of the Greater Los Angeles area. They have made suggestions that a new international airport be located at Marine Corps Base, Pendleton. More and more of these pressures are building up. It sounds, I know, ridiculous, but these kinds of things are happening. We feel we have to know just what the situation is.

We feel we have to recognize the movement of our population. We feel we have to recognize the pressures we are being faced with.

Mr. FLOOD. The Governor of Jersey was down with a big delegation asking you to examine McGuire to make it another New York type of airport. Is that what we are doing?

Mr. SHILLITO. Yes, sir. This is one of the things that was a piece of many things that tied into the need for looking into the total.

Mr. FLOOD. Why is that our job?

Mr. LIPSCOMB. That is a good question.

Mr. FLOOD. I am not against it, but why me?

Mr. LIPSCOMB. These studies were initiated last year.

Mr. SHILLITO. By us within Defense.

Mr. LIPSCOMB. But they were initiated last year, weren't they? When were they really initiated? They talked about them in the hearings last year?

Mr. SHILLITO. They did.

Mr. LIPSCOMB. It was not initiated by you or this administration.

Mr. SHILLITO. The southern California study was not initiated by us but the Northeast study was initiated by us.

Mr. LIPSCOMB. That may be, but I know something about southern California.

Mr. FLOOD. Twenty years ago, Mr. Secretary, I was commissioned an admiral in the Nebraska navy. How is my navy? Did you ever hear of the Nebraska navy?

Mr. SHILLITO. No, sir.

Mr. LIPSCOMB. I think you ought to spell this out in detail, because this is important to a lot of people that will read this record.

Mr. SHILLITO. Very important.

Mr. LIPSCOMB. Clarify why you initiated such a study, why it is going on, so that the record is completely clear what the Navy is studying in southern California concerning military installations. I think it might be completely misunderstood.

Mr. SHILLITO. I think you are conceivably correct.

ENCROACHMENT STUDY TO BE DONE IN-HOUSE

Mr. LIPSCOMB. Is this an in-house study?

Mr. SHILLITO. Yes, sir, it is. Both of them are.

Mr. LIPSCOMB. Being done by military personnel?

Mr. SHILLITO. A combination of military and civilian personnel. Again southern California, primarily Navy, with the assistance of the other services, Northeast being pretty much an amalygam of all the services. The bases are one-third, one-third, one-third, almost, that we are talking about in the Northeast.

Mr. LIPSCOMB. Do you plan to hire outside consultants?

Mr. SHILLITO. We have not gotten to that point yet.

Mr. LIPSCOMB. Are there plans to hire outside consultants?

Mr. SHILLITO. I would say after we see what the results look like from these two studies we then would be in a better position to see what our next step should be.

Mr. LIPSCOMB. Do you have a request in the fiscal year 1970 budget for funds for outside consultants? Is there a request in the fiscal year 1970 budget for \$50,000 for this type study?

Mr. SHILLITO. I am sorry, I cannot answer that question.

Mr. LIPSCOMB. Would you check your records and find out?

Mr. SHILLITO. Yes, sir.

Mr. LIPSCOMB. Also when you do find out that there is \$50,000 in the budget tell the committee what your plans are for this?

Mr. SHILLITO. Yes, sir.

(The information follows:)

The problem of civilian encroachment on military installations is nationwide. At present two other studies are underway on this same subject, one for the airfields in the Northeast part of the United States and another one in the Chicago area. The \$50,000 in the Defense budget shown against Project SCRIP is in reality funds to cover contractual assistance if found necessary to supplement our in-house effort for the analysis of the impacts of civilian encroachment in many other areas of the United States. As such, it should not be earmarked against former Project SCRIP or Project WIRE but should be earmarked for overall studies on civilian encroachment.

Mr. LIPSCOMB. I do not see why the Department of Defense is making studies in these areas to determine whether there should be a municipal airport.

Mr. SHILLITO. That is not our position. Our concern is what is going to happen to Defense installations in years to come as a result of these pressures. Maybe this should be made by some other segment of Government as regards our defense installations in the future. But the pressures are very severe, sincerely.

WILLIAMS AIR FORCE BASE

Mr. RHODES. I know the pressures are severe because I felt one quite recently, Williams Air Force Base in Arizona. At my request the Department of the Air Force did send some people out to investigate the possibility or the effects of encroachment on the area just off the runways at Williams.

It was my thought that if the encroachment was severe or might be severe that there should be a policy determination as to what would be done. In other words, either we should say to these people, "Look, we were here first and forget it," or we should determine what land purchases should be made in order to protect Williams.

Mr. SHILLITO. Yes, sir.

Mr. RHODES. It was my thought at the time having seen some studies of the noise patterns that by a rather minimal purchase of land, most of the probability of serious encroachment could be handled. The noise pollution portion of it could be handled. I am now in the process of corresponding with the Air Force with this thing in mind. I believe by perhaps selective abatement of reasons which give rise to encroachment problems that you might be able to handle this in some of your installations. I agree it does take some work on your part.

Mr. SHILLITO. We feel that way, sir. Maybe we should be going down a different track on this and if there is a more logical route we would sure like to do it.

Mr. FLOOD. Ten o'clock Monday morning, gentlemen.

Mr. SHILLITO. Yes, sir.

MONDAY, JUNE 23, 1969.

Mr. SIXES. The committee will come to order.

PLANNING FOR THE FUTURE

Mr. Secretary, when we adjourned our hearings last Thursday we were discussing the encroachment problem. I would like to continue with this discussion at this time. You mentioned that well over half of the Defense Department installations have had some form of encroachment problem in the past year. This is a subject that will have

to be considered at length by the military construction subcommittee. However, significant changes in base structure could have a significant impact on the activities of the Defense Department for which we are appropriating funds.

Second, savings or costs resulting from any movement of activities between bases will accrue to these appropriations accounts.

Finally, the various studies involved will be funded and are being funded from these accounts.

I seem to detect in your statement the beginning of a change in philosophy in the Defense Department toward the use of land controlled by the military. You say, "Historic assumptions relative to the virtually unlimited availability of land, water, and air, in order to allow the Department of Defense to conduct its responsibilities are no longer valid."

This is largely correct, I think. I can see certain problems that will arise if the matter is approached by the Defense Department in a piecemeal rather than a comprehensive basis.

This change of approach by the Defense Department will undoubtedly generate increased pressure to abandon bases in many areas. Unless you survey all facilities needs nationwide, you may find that you are forced to retreat base by base until you discover that the military simply does not have the options left by even the most basic real property needs. The Subcommittee on Military Construction has been very closely attuned to this problem and very much interested in it. The discussion is certainly apropos here. I do think that we should explore this jointly at this time. Would you tell us what type of comprehensive planning the Department is going to undertake?

Will it be done on a nationwide basis? Will there be participation by other Federal agencies, by States and local communities?

Mr. SHILLITO. Mr. Chairman, before I attempt to answer your specific questions, I would like to mention that we have with us today in addition to Messrs. Malloy and Riley, Mr. Sheridan who is our Deputy Assistant Secretary of Defense for Installations and Housing.

Mr. SIKES. And who has done an extraordinarily good work in this field for a number of years and is certainly well acquainted with the problem.

Mr. SHILLITO. Thank you, sir.

Any portions of your question that I do not answer completely, I would like to have Mr. Sheridan answer.

Mr. SIKES. I think it would be well to supplement what you say.

Mr. SHILLITO. Yes, sir. We also have General Stanwix-Hay.

Mr. SIKES. Who has testified very capably before the Military Construction Committee.

Mr. SHILLITO. And Colonel Elder.

Mr. Chairman, you have covered the problem, as we see it, in your lead into the question. We agree with your observations. We sincerely feel that there should be concurrence in anything that takes place in this area by the Subcommittee on Military Construction and perhaps other committees of the Congress. We do feel and I gather from your statement that you agree with us, that while we have to look at the elements in something of a piecemeal fashion, we have to look at the total picture. We have to consider the interrelationship of these elements before we can make any recommendations. Your question covers

three factors. One dealt with planning. The other dealt with scope nationwide, and third, with participation. As far as planning is concerned, we gave serious consideration to the overall problem, recognizing that almost half of our major installations have had some encroachment problem in the last year.

There was extensive planning with respect to whether we should take a look at a piece of the total and, if so, where. Southern California, as was discussed last Thursday, appeared to be a logical area in which to start. We had a few immediate problems that we were faced with in southern California. It is heavily Navy, as you know, so it was decided to put this under the surveillance of the Navy. When the southern California study was initiated, it was entitled Project Wire, for western installations regional evaluation. It was started with the understanding that this was not going to lead to any decisions as regards any pieces of our installations in southern California. This was primarily, and is primarily, for the purpose of telling us what our problems are going to look like in the 1980-85 time frame, and building a complete understanding of that segment of the total United States, based on the learning that comes out of that to then decide what we do as far as the follow-on segments are concerned.

We were somewhat pushed into the southern California region also by the fact that within southern California they had kicked off a study among their 10 southern counties, and it consequently made it logical for us to take a look, too, in as much as their position and thinking, et cetera, in regard to defense installations would undoubtedly be different than ours.

It was understood, or is understood, that as the southern California study takes place, the Northeast study takes place, conceivably down on the gulf coast next, conceivably down on the Southwest section of the country next, that we will now find ourselves bringing together all these pieces of the total, and then hopefully being able to look at the total in conjunction with you gentlemen and making recommendations as to what we do after we have a handle on this total picture. So this touches on your second question, in that it is nationwide, sir. It is intended that it be nationwide, we would like to hope that before anything in the way of recommendations come out of these studies that we have a chance to have a very good understanding as to what the situation will be nationwide. Now as far as participation is concerned, in the southern California area, we mentioned that there is this group in the State looking at the 10 southern counties. In the southern California area we are deeply involved with the FAA. We are also deeply involved with the FAA in the Northeast.

But to my knowledge that is pretty much the extent of the participation as far as other Government agencies are concerned. I would like to have Mr. Sheridan elaborate on this in any way he sees fit.

Mr. SIKES. Let me repeat the question.

What type of comprehensive planning are you going to undertake? Will this be on a nationwide basis? What will be the extent of participation in the planning by other Federal agencies, by States, and by local communities?

Mr. SHERIDAN. At the present time, as the Secretary pointed out, we are involved in two studies, southern California and the northeastern seaboard. We expect to complete the study on the Northeast from

Delaware to Maine within the next week. After that is completed, we propose to spread out the area and take in a greater part of the United States than what we are taking in at the present time. The Northeast study is being worked out with the assistance of the FAA, with the military departments, of course, and we have contacted all the municipal organizations that have anything to do with airspace in that general area.

We have had their participation. The studies conducted for the Governor of New Jersey by private engineering organizations have been made available to our study team.

We propose to do the same thing in southern California under the sponsorship of the Navy.

Mr. Chairman, the northeastern seaboard study has been done by in-house people in Mr. Shillito's office with service department assistance. The Navy study will be done by field personnel of the Departments of the Navy, Army, and Air Force.

PURPOSE OF STUDY

Mr. SIKES. What do you mean by study? What are we trying to accomplish?

Mr. SHERIDAN. We are trying to determine what the military requirements are 10 years in advance of today, and take into consideration the pressures that are being brought in the area of encroachment, and it is different in each case. Sometimes it is residential; other times it is airspace, airport developments and things of that type, trying to get the picture both from the point of view of the best planning in the military for the next 10 years as well as the best information we can get on civilian development in the area of a base. That is what the study consists of.

(The following supplemental information was provided by Mr. Sheridan subsequent to the hearings:)

Now let me address your earlier question in which you asked—

Instead of covering southern California and the northeastern seaboard in two separate studies with plans to cover the remainder of the United States in future studies, why did you not address the encroachment problem in the entire United States in one study?

As stated earlier, our ultimate objective is to address encroachment in the entire United States. However, since the problem area is so large and the problem is so complex, our plan is to study the United States on a regional basis. In effect, we have divided the country into manageable increments which can be studied individually and can then be consolidated and form the basis for the national study.

For example, statistical data such as the present and projected growth of general aviation on a national basis has little meaning when addressing the pressures of expanding general aviation on a specific military airfield. We must know the present and projected growth of general aviation within the sphere of influence of the military airfield in question. We must know the plans of the local communities for meeting projected long-range aviation requirements, how these plans will affect the military airfield, and how the master long-range development plan of the airfield can be altered to avoid possible conflicts. We must know and evaluate the projected population expansion and economic development of the local area. In summary, we must know our present and future plans for each major installation as well as the projected growth of the surrounding communities and the plans of these local communities for meeting future needs. The organizations and local agencies, whose planning we must evaluate to insure compatibility with our long-range installations plans, are numerous. It is our feeling that we must first build the pieces before we can assemble them to form the final product.

ZONING COOPERATION

Mr. SIKES. Let us talk about one or two of those things. I would like either of you to discuss these points as I bring them up. The one is the actual matter of encroachment upon a base. I have had some firsthand experience with this. I had one base that had to have a mission abandoned simply because of encroachment within the area by businesses and homebuilders which simply built up around the base to the point that it was not safe to fly off it anymore. Fortunately, we found another use for it. Then there is the matter of undesirable types of encroachment even if they do not interfere with the mission. It seems regardless of how much land you acquire just outside the gate, you are going to have a number of establishments of one type or another spring up on the first available private land and some of those are not very desirable.

What have you been able to do or what have you attempted to do or what are you planning to try to do in the way of obtaining zoning cooperation from the local authorities to prevent these situations from arising?

Mr. SHERIDAN. That is a constant effort that is being carried on by the local commanders in trying to sell the community on the advantages of having more desirable neighbors, and that is not directly part of our particular study here. We are talking about actual physical encroachment as you mentioned where the airfield had to be shut down.

As for the matter of undesirable neighbors the local commander should use persuasion and public relations with the community to try to have them either zone or discourage in some other way the establishment of undesirable neighbors.

FUTURE BASE CLOSURES

Mr. SIKES. What does the general picture of the military need for the future look like? Do you think you will be able to continue to close bases or do you think you have gone about as far as you can in closing bases?

Mr. SHERIDAN. In my opinion, I think at the present time, with the present size of the Armed Forces providing that does not drop—if that drops it is another picture—if the present size continues—

Mr. SIKES. You know we are not going to continue to have three and a half million men in uniform when peace comes.

Mr. SHERIDAN. When that reduction comes, Mr. Chairman, the entire base picture will have to be reviewed.

Mr. SIKES. We have many fewer bases now than we had back at the time when we had considerable smaller number of men in uniform. You have to have some room for expansion and some plans for mobilization.

Mr. SHERIDAN. Yes, sir.

Mr. SIKES. You cannot operate just the bases you need for a peacetime army.

Mr. SHERIDAN. No, you have to take peacetime and mobilization requirements into consideration.

Mr. SHILLITO. Of course, this is really a part of the kind of studies we are talking about here; that is, attempting to project these future

needs and to determine, based on these future needs and based on these encroachment problems we have been talking about, what we should or should not be doing so far as bases, facilities, and so on, are concerned. This all ties into that. By the way, I may have misstated one point here. We suggested that hopefully—I certainly inferred—that this nationwide look would take place before anything in the way of recommendations would be made. I am sure you realize that there may be a few critical cases where we will have to make immediate recommendations.

DISPOSAL OF EXCESS PROPERTY

Mr. SIKES. I think it has been the policy of this committee that we want you to dispose of any property that you do not need but we want you to be doubly sure that you don't need it. This committee has seen instances where the property has been declared excess and disposed of as surplus and within a few years you had to have it back at several times the price.

That is poor economy.

Mr. SHILLITO. Yes, sir.

Mr. SIKES. One of the best examples of having a lot of land that some people could say you do not have a needed requirement, take a Naval Air Force base where you have a half million acres, yet it is one of the finest assets that the Government has in the way of a valuable timber-producing reservation. The Government is not losing money by holding the property. It is going up in value. It belongs to all the people. And you have room for training facilities.

Mr. SHILLITO. Yes, sir.

VALIDITY OF BASE CLOSURE SAVINGS

Mr. SIKES. There is no pressure at the local level to excess that property. I wonder if you have conducted studies to determine the validity or the accuracy of the claims made on savings at the time of the rather massive base closing operations instituted by Secretary McNamara. Has there been a follow-on to determine actual savings if any from that closing operation.

Mr. SHILLITO. I have not gone over such a look myself, sir.

Mr. SHERIDAN. The studies were all validated by audit at the time they were made.

Mr. SIKES. But experience may have placed a different complexion on it.

Mr. SHERIDAN. We have not made a specific study to price each one out to see if the savings actually materialized.

Mr. SIKES. I am reluctant to suggest that you go to the expense of doing it but I am curious what actually transpired. I feel that the claims of savings were overstated at the time because the cost of displacement and the cost of new facilities certainly have to be reckoned with.

The losses in the communities occasioned by the transfer, the losses of taxes to the Government, and so forth. I am not going to ask that you update these estimates but I have always had misgivings about the actual amount of savings, and I have had concern about the effect of dispersal of targets or lack of dispersal of targets. You have con-

solidated bases and made them more inviting targets in the event of all out war.

Is that still considered a major factor, or is the Pentagon simply taking it in stride and assuming that we do not have to worry about congestion anymore.

Mr. SHILLITO. No, sir; we are most concerned with the dispersal of our facilities. I might suggest, Mr. Chairman, I do not know what the sampling would add up to, conceivably in line with your earlier suggestion, why don't we see if we cannot take a look at that. It would not be too time-consuming and too expensive to sample the previous closures.

Mr. SIKES. Very well.

(The information follows:)

SAMPLING OF BASE CLOSURE ESTIMATED SAVINGS

The estimated annual savings calculated at the time of our base closure announcements are the best and most reasonable estimates that can be made considering all factors which would influence savings. Our present accounting system cannot reflect the actual savings resulting from a specific closure action. To revise it to provide this detail would be uneconomically expensive in terms of manpower and money. However, in order to validate our estimates and to insure that they are in fact reasonable, the audit agencies of the military services conduct audit surveys of anticipated savings. These audits sometimes result in increases or decreases to the originally estimated savings.

We have made a sampling review of approximately 5 percent of our announced actions, comparing the estimated savings at the time of the announcement to those audited savings subsequently reported by the military services. In 41 actions reviewed, the estimated original savings totaled \$421,588,000. The audited savings totaled \$424,093,000, a variation of one-half of 1 percent. The following table indicates the spread of these savings.

ESTIMATED SAVINGS OF SAMPLED ACTIONS

(Dollar amounts in millions)

Audited savings range (percent)	Number of actions sampled	Original estimated savings	Audited savings	Difference
Equal.....	10	\$68.618	\$68.618	-----
0 to 15 percent above original estimate.....	17	162.874	166.115	+ \$3.241
30 to 35 percent above original estimate.....	2	23.955	31.369	+7.414
0 to 15 percent below original estimate.....	11	161.184	156.920	-4.264
75 to 80 percent below original estimate.....	1	4.957	1.071	-3.886
Total.....	41	421.588	424.093	+2.505

ENCROACHMENT PLANNING COSTS

Mr. SIKES. For the record, would you tell us how much we are presently spending for the planning of the type you discussed and what level you anticipate for the future years.

(The information follows:)

The Navy, which is responsible for the encroachment study of the Department of Defense installations in the 10 southern counties of California, has budgeted \$800,000 in fiscal year 1970 for this effort. Most of these funds will be used for Navy in-house effort, although some funds may be used for special contract work as determined necessary. OSD has included \$50,000 in the fiscal year 1970 budget for contract effort connected with other encroachment studies such as the Northeastern Seaboard study. We expect about this level of effort to continue for the next few years.

EXAMPLES OF ENCROACHMENT BEING EXPERIENCED

Mr. SIKES. For the record, discuss more explicitly the various types of encroachments you have experienced.

(The information follows:)

Military installations are experiencing encroachment as a result of the following:

Urbanization—explosive demands for residential and community developments in the vicinity of military installations.

Airspace congestion—competition for airspace with commercial aviation and its concentration in and around major cities.

Conflicts in airspace and for airports with general aviation needs.

Expanded Federal highway programs and their attendant demand for land.

Growing demands for park and recreational areas.

The decentralization of industry to suburban and rural areas in heretofore militarily secure areas.

The increasing general competition for land associated with its skyrocketing values.

Demands by counties and municipalities for an increased real estate tax base and the growing desire to annex military installations into municipalities.

Competitive demands within the mineral development industry in the Outer Continental Shelf.

REMEDIAL ACTIONS TAKEN

Mr. SIKES. For the record, tell us what types of remedial actions you have taken.

(The information follows:)

We have taken many actions in the past in an effort to either comply with the goals or aspirations of community interests or to protect ourselves from serious mission degradation. Following are some of the actions taken:

Acquired necessary aviation and other easements to minimize land requirements and still enable air installations to operate.

Leased land adjacent to military installations to protect the military installations particularly airbases.

Acquired height and density easements in order to control construction around air installations.

Worked with local zoning authorities to influence zoning.

Allowed joint-use to varying degrees for such uses as commercial and general aviation in the case of airbases and recreational purposes in the case of other installations.

Mr. SIKES. Are there questions on encroachment?

LOGISTICS PERFORMANCE MEASUREMENT AND EVALUATION SYSTEM

Mr. SIKES. Concerning the reference in your statement to the establishment of a logistics performance measurement and evaluation system, I believe you have already been asked to insert in the record the Defense Department directive dealing with this program dated May 29, 1969.

Mr. SHILLITO. Yes, sir.

(The directive appears on pp. 470 and 471.)

REVIEW OF LOGISTICS MANPOWER

Mr. SIKES. Under logistics manpower, I would like to have some additional detail on the review of logistics manpower begun in 1968 and completed in February of this year. Will you advise the committee of the reason for the additional attention needed in this area to improve the professional role and skills of the logistics personnel.

Mr. SHILLITO. Yes, sir, Mr. Chairman.

To begin with, we have approximately 1,070,000 people today in our overall logistics operations throughout the Department of Defense.

Secretary Morris in 1968 initiated a study to develop long-range logistics manpower plans and objectives. The study was directed toward six major groupings: One, the development of a manpower information system; two, the development of improved logistics career programs; three, the recruitment and retention of our people; four, improved education and training; five, the mix of our military and civilian personnel; and six, the role of our logistics managers in manpower matters. The study was completed in February of this year. A few things are particularly important that warrant mentioning that have come out of this study. First, we found that we do not have an adequate manpower information data bank as far as our DOD management is concerned on the quantitative and qualitative characteristics of our logistics work force.

AGE OF WORK FORCE

Second, we have an aging problem that would appear to be somewhat disturbing. The average age of our civilian work force—by the way, our civilian work force constitutes 36 percent of the total 1,070,000 that I referred to—the average age of our civilian work force is roughly 45. When we look at the age and the length of service of these people nearly 40 percent of these employees will qualify for retirement in about 5 years. In 10 years over 60 percent of these people will qualify for retirement. Another interesting statistic is that in looking at our senior procurement people alone in our overall logistics work force, we are faced with the situation where 27 percent of the 3,882 senior procurement management people registered in our Central Automated Information and Retrieval System (CAIRS) will be eligible for retirement through December 1971.

Mr. ANDREWS. What is the mandatory retirement age, Mr. Secretary?

Mr. RILEY. The mandatory age is 70.

Mr. SHILLITO. We are not talking about these people waiting until they reach the age of 70 but earlier retirement at age 60, 62, with time in service.

Mr. ANDREWS. You mean elective retirement?

Mr. SHILLITO. Yes.

Mr. RILEY. You can retire if you are 55 years old with 30 years of service.

Mr. SHILLITO. This is a thing that disturbs us. We know that our numbers, our ages, our people eligible for retirement is significantly different than in other segments of our society. For example, we have less than 7 percent of our total civilian employees who are under 30 years old. This is significantly different than other segments of our society.

EDUCATION OF WORKFORCE

Another interesting thing that came out of the study is that the typical civilian has remained in one location for a considerable period of time, whereas the military officers have had much more in the way of rotation as we would all expect. At the same time, the education

of the two is significantly different in that the formal education of the average civilian is much less than the average officer. The average military has a training background that makes him more of a generalist, whereas our civilians are more functionally oriented toward specialties. We find the career planning for our civilian logisticians is not comparable to that available to our military people.

We have various career programs in operation, somewhat significantly different within each of the services. We find ourselves concerned as to their completeness and their lack of integration. The military-civilian mix in our logistics operation varies significantly from service to service. We feel that comprehensive DOD-wide logistics oriented training and educational programs need considerable improvement. I might mention here, too, that a similar look at our major weapons system people is being taken, be they considered logisticians or more technically oriented.

Our plan is for this policy board, which was made up of our senior logisticians in each of the services, OSD, JCS, DSA, to remain in existence and meet at least twice a year for the foreseeable future in the interest of monitoring the progress that we anticipate making to bring about the improvements recommended by this particular study.

We think this is going to have a significant pay-off, sir, but it involves a long-range effort as the study was titled.

NEED FOR ADDITIONAL STUDIES

Mr. SIKES. Do other studies have to be made to determine data relative to the composition of the work force, military career programs, military-civilian application, recruitment, and retention, et cetera?

Mr. SHILLITO. I do not know that I would refer to them as "other studies." There may have to be some other studies that would not be as detailed and as significant as this one. We are certainly going to have to undertake further study in the major weapons system area that I mentioned. They should not be of the same magnitude as this one, Mr. Chairman.

COST OF STUDY

Mr. SIKES. Who made the 1968 study?

Mr. SHILLITO. This was conducted under my office.

Mr. SIKES. Was it in-house?

Mr. SHILLITO. In-house; yes, sir.

As I mentioned, it was cleared by this policy board.

Mr. SIKES. Do you have an estimate of the cost?

Mr. SHILLITO. Mr. Chairman, I am going to give you that for the record.

(The information follows:)

The task force which undertook this logistics manpower study for the policy board was comprised of eight professionals and included an Air Force colonel and a Navy captain. The study effort took 6 months to complete. Accordingly, we estimate the salaries of those Government officers and employees—and hence the cost—to be approximately \$96,000. This does not include the cost of the Policy Board members who met for at least 2 hours every 2 weeks during the study period.

RECOMMENDATIONS AND CONCLUSIONS OF STUDY

Mr. SIKES. Give us for the record a listing of the recommendations and conclusions of the study.

Mr. SHILLITO. Yes, sir.

(The information follows:)

F. SUMMARY OF FINDINGS

The Policy Board approved the 47 recommendations listed in G, below covering six major problem areas identified by the task force. The findings leading to these recommendations can be summarized as follows:

1. *Manpower information system.*—There is an urgent need to establish a logistics workforce information system compatible with information gathering systems now in existence in the Services, which will provide logistics managers at each echelon (from field level to OSD) with timely and comprehensive information on their military and civilian personnel resources.

2. *Development of logistics career programs.*—Career planning for logistics civilian personnel in the Department of Defense is not comparable to that available to military personnel. The Services currently have various career programs in operation but implementation and coverage for logistics personnel are neither complete nor integrated among related major logistics functions.

There is an immediate need for the Services which have not already done so to develop and implement agency-wide career programs covering the major logistics functional areas. Existing DOD Instructions contain sufficient guidance to provide the type of programs which can materially assist in the long range solutions to our personnel problems. Logistics managers at all levels should become directly involved in the development, operation and evaluation of both military and civilian career programs covering their functional area of responsibility.

3. *Recruitment and retention.*—Retention of both officers and enlisted men have been relatively low, reflecting the temporary nature of the large proportion of draftee and reservist input. Mandatory retirement has operated to remove from the work force men skilled in logistics functions who are still capable of high-quality performance.

The logistics civilian work force is higher in age and length of service than either the industrial or governmentwide work forces. Less than 7 percent of the civilian work force is under 30 years of age, and nearly two-thirds are 45 or older. Each 5 years for the next 15 years 20 percent of the work force will reach the 30-year service point. Turnover due to retirements during this period will be heavy.

The civilian executive who is no longer as productive as required presents a difficult performance evaluation problem. Trial and management initiated retirement programs will not provide the answer to the problem.

Civilian recruitment has generally produced the required personnel, except for particular skills in certain areas. Lack of coordination of college relations and recruitment programs is emerging as a problem. College graduate recruitment has decreased due to resource limitations during fiscal year 1968 and may remain depressed during fiscal year 1969. Use of cooperative work-study programs and the management intern option of the Federal service entrance examination should be expanded.

Employment of retired military personnel in the civilian work force is hindered by present laws.

4. *Military-civilian mix.*—The acceptance of the use of military personnel in CONUS functions which could be performed by civilians, when necessary to provide a rotation and training base, was gradual. All services and OSD now cite this requirement as one of the criteria in delineating manpower spaces for military or civilian incumbency.

The present military-civilian mix varies greatly from service to service and from function to function. This, combined with the differences in mission, organization, and rotation policies among the services makes a uniform method of computing the required ratio infeasible. Each service is working toward a re-balance of the mix by individual skill groups rather than by functions composed of many different skills.

5. *Education and training.*—Comprehensive DOD-wide logistics-oriented training and educational programs do not exist. Military career programs generally stress professional education as the basis of career progression with functional technical training as ancillary. None of the formal civilian career programs include professional education as a prerequisite for advancement but are based instead upon functional technical training as the career foundation. While professional education is used as a career development and retention incentive for the military, the philosophy regarding civilians is that professional advancement is generally the responsibility of the individual. Implementation of civilian career programs appear to be insufficient to meet the future needs in the logistics area.

There are many educational and training procedures and techniques used within the Defense Establishment. They lack coordination and are not uniformly applied, either as between military and civilian; between the military departments and defense agencies; or within any of the functional areas.

The total requirement for logistics resident instruction exceed quotas assigned by a ratio of almost 2 to 1. Nonresident and correspondence courses are inadequate to satisfy the present need. Resident training is planned, executed and evaluated under local standards which are not consistent with DOD directives or instructions.

Educational opportunities for military and civilian personnel do not include a planned program of identifying and establishing accreditation for inhouse and college "certificate" programs or establishing credit transfer for jointly approved DOD and college accepted courses.

Present fiscal arrangements whereby the sponsoring agency budgets and finances all courses expenses—except TDY and per diem—has created an artificial and arbitrary student allocation procedure and appears to disguise the true priorities for course attendance.

6. *Role of the logistics manager in manpower matters.*—Logistics managers cannot exercise their proper role in manpower and budgetary decisions without structured personnel information on their work force. Lacking this information they are not participating effectively in the personnel process.

Logistics managers must identify the key billets in their organization and identify the position as requiring a civilian or military or either as an incumbent.

The planning, programing and budgeting system was designed to produce a balance between funds, workload and people and should be reviewed for desirable changes to improve the system.

Ceiling controls when coupled with budget controls generate a continuous imbalance between workload and people available to accomplish the work.

Mobility and flexibility have not been established as requirements for key civilian career positions. They must become a way of life if we are to have a knowledgeable decision making civilian work force.

G. RECOMMENDATIONS

Listed below are those recommendations of the Task Force as accepted or modified by the Policy Board with suggested action office. The recommendations are grouped by problem title.

LOGISTICS MANPOWER INFORMATION SYSTEM REQUIREMENT

1. That Logistics Chiefs and Logistics Commanders determine information required to manage their respective logistics workforce. (Proposed Action Office: Logistics Chiefs and Logistics Commanders)

DEVELOPMENT OF COMPATIBLE LOGISTICS CAREER PROGRAMS FOR MILITARY AND CIVILIAN PERSONNEL

2. Requests the ASD (M. & R.A.) to reissue DOD instruction 1430.1 requiring all DOD components to develop and implement civilian career programs in the functional areas of supply management, procurement, quality control, maintenance, and transportation, including all program elements presently specified in existing DOD instructions. (Proposed Action Office: ASD (I. & L.) and ASD (M. & R.A.))

3. Require that such programs be developed under the guidance and supervision of appropriate functional chiefs as now specified in DOD instruction 1430.10. (Proposed Action Office: Materiel Secretaries and Director, DSA)

4. Require full implementation by the Services of all program elements of the DOD career program for procurement personnel. Complete development of a sound appraisal system and assure it use in the development of career referral lists. (Proposed Action Office: Materiel Secretaries, Director, DSA and DOD Procurement Career Management Board.)

5. That the Materiel secretaries and the director, DSA:

Assure the development of logistics career programs within their agencies. Provide a mechanism for cross Service interchange of program ideas. Provide for courtesy referral of qualified personnel to other Services and DSA when mutually desirable.

Report program progress annually to the ASD (I. & L.).

(Proposed Action Office: Materiel Secretaries and Director, DSA).

6. Request the Services and DSA to identify their key civilian logistician positions (GS-13 and above), and to develop individual "Capstone" Logistics Career Programs for senior logistics positions tailored to the specific needs of the Service or Agency. (Proposed Action Office: Materiel Secretaries and Director, DSA).

PERSONNEL RETENTION AND RECRUITMENT

7. The logistics chiefs, working with their military personnel organizations, explore the feasibility of modifying current retirement practices that are within the Services' administrative authority, in order to retain in the workforce officers with needed logistics skills. (Proposed Action Office: Logistics Chiefs)

8. The Assistant Secretary of Defense (I. & L.) assure that the logistics chiefs are fully informed on proposed modifications of the mandatory retirement laws developed by the ASD (M. & R.A.), so that a DOD-wide logistics position on such legislation may be developed. (Proposed Action Office: ASD (I. & L.))

9. The logistics chiefs explore the feasibility of becoming logistics career sponsors for the military logistics careers, with some responsibility for making career patterns more visible and, in consonance with operating needs, assuring that actual assignments of logistics careerists are to logistics positions in their career area. (Proposed Action Office: Logistics chiefs)

10. Each logistics chief assure that his personnel data system can provide turnover data by occupation, grade level, and organizational component, and insure that turnover data is used as one input into career planning and manpower requirements determinations. (Proposed Action Office: Logistics chiefs and logistics commanders)

11. The development of career programs in all logistics functions, the logistics chiefs and commanders should establish mandatory trainee input that is fully supported with the allocation of required ceiling and funds. (Proposed Action Office: Logistics commanders through logistics chiefs)

12. The logistics commanders should place emphasis on the development of substantive job skills and managerial competence in the work force now aged 30 to 40 years to prepare them to assume the responsibilities now handled by senior employees. This effort should include an analysis of the present retirement potential, and the establishment of understudy positions or use of other techniques to identify individual development requirements to meet future needs. Again, allocation of ceiling and funds must be made to support this effort. (Proposed Action Office: Logistics commanders)

13. The logistics chiefs each establish a planning group of budget, program, and personnel experts to evaluate current practices and explore the expansion of options available to managers facing personnel reductions in order to maximize the retention of high quality employees in such reductions. (Proposed Action Office: Logistics chiefs)

14. The ASD (M. & R.A.) be asked to support a research effort to develop a diagnostic appraisal methodology for evaluation of high level employee performance. (Proposed Action Office: ASD (M. & R.A.))

15. That time-limited tours of duty for selected positions be included in the development of "Capstone" career programs. (Proposed Action Office: Materiel secretaries and director, DSA.)

16. An analysis and evaluation of present college relation efforts should be initiated. (Proposed Action Office: Logistics chiefs and logistics commanders.)

17. Each logistics chief and/or commander should assure the availability of high quality recruitment materials directed toward meeting his particular needs. (Proposed Action Office: Logistics chiefs and logistics commanders)

18. Logistics chief and/or commanders not now doing so should coordinate col-

lege recruitment visits by officers under their command. (Proposed Action Office: Logistics chiefs and logistics commanders.)

19. Each logistics chief and/or commander identify the potential for input of management interns, within an overall career plan leading to key positions, and provide for such input annually. (Proposed Action Office: Logistics chiefs and logistics commanders.)

20. Each logistics chief and/or commander evaluate the potential for use of the cooperative work-study program and provide ceiling and funds to support it. (Proposed Action Office: Logistics chiefs and logistics commanders.)

21. The logistics chiefs and commanders should initiate a program to aggressively recruit separating or retiring military personnel with shortage skills. This is possible even within the constraints of today's system. This will require the coordination of the military and civilian personnel staffs of each Service, which should be requested. (Proposed Action Office: Logistics chiefs and logistics commanders.)

22. The logistics chiefs and commanders should identify shortage logistics skills and assure that they are incorporated in the Vietnam era veterans employment referral program. (Proposed Action Office: Logistics chiefs and logistics commanders.)

23. All logistics managers support the proposed automated skill data referral system developed by the ASD (M. & R.A.). (Proposed Action Office: All logistics managers.)

24. The logistics chiefs and logistics commanders be informed of the career conversion proposal developed by ASD (M. & R.A.) so that they may evaluate its potential applicability to the logistics function. (Proposed Action Office: Logistics chiefs and logistics commanders.)

MILITARY-CIVILIAN PERSONNEL MIX

25. That the personnel and manpower systems now in existence in the services be exploited by logistics managers to establish the desired military-civilian personnel mix. (Proposed Action Office: Logistics chiefs.)

26. That a detailed statement of personnel requirements for logistics support of any new or revised weapons or management systems be developed as early as feasible in the life cycle, to include designations of skills, organizational echelon and categories of personnel to permit approval of authorization of personnel as a part of the approval of the system. (Proposed Action Office: Logistics chiefs.)

27. That each service energetically pursue a rebalancing of the military-civilian mix in critical functional areas which may exhibit an unbalance. (Proposed Action Office: Logistics chiefs.)

28. That one office in OASD (I. & L.) be established to assist logistics managers to process changes in manpower controls as required to rebalance the logistics work force. (Proposed Action Office: ASD (I. & L.).)

EDUCATION AND TRAINING

29. That the task force recommendations concerning a logistics career management board to develop, implement, monitor, and review all logistics career development and training programs be reexamined after more experience is gained in current and planned programs. (Proposed Action Office: Logistics commanders.)

30. That determination of scope of the functions of the logistics career management board be made if it is established in the future. (Proposed action office: Logistics commanders.)

31. Draft specific procedure for obtaining OSD, military departments and DSA plans for advanced education and training, as well as intern training. (Proposed action office: Materiel secretaries and director, DSA.)

32. It is recommended that logistics managers direct their personnel and training staffs to develop organized efforts to encourage all personnel with partial qualification for college degrees to complete the requirements. In view of the impending management gap anticipated through retirement during the next 5 to 10 years this is especially critical for their potential replacement source in the GS-11 and 12 grades. (Proposed action office: Materiel secretaries and director, DSA.)

33. The administrators of organic educational and training resources be directed to develop programs of instruction with the objective of achieving such accreditation, at either the undergraduate or the postgraduate levels or at both levels where appropriate. (Proposed action office: Materiel secretaries and director, DSA.)

34. That appropriate representatives of the ASD (I. & L.) and ASD (M. & R.A.) take necessary action biannually to have new and revised curricula developed reviewed by appropriate authority to assure such credit is recognized. (Proposed action office: Materiel secretaries and director, DSA.)

35. That the distribution of bulk manpower allocations at the activity level anticipate absence for training in the same manner that anticipated annual and sick leave is considered. (Proposed action office: Materiel secretaries and director, DSA.)

36. That the service chiefs be asked for formal comment on the recommendation that present procedures for financing all course costs by the sponsoring department be abandoned and that each department reimburse the executive agent for its stated requirement. It is suggested that a working capital fund or anticipated appropriation reimbursement procedure would be more appropriate for accomplishing this objective. (Proposed action office: Service chiefs.)

37. The facilities expansion for ALMC and AMETA be aggressively supported by OASD (I. & L.) and the Department of the Army. (Proposed action office: Materiel secretaries and director, DSA.)

38. All departments be required to evaluate and develop a substantial expansion of on-site training to satisfy known requirements. (Proposed action office: Materiel secretaries.)

39. All sponsors of approved resident courses be required to develop and administer equivalent OJE and correspondence courses to accommodate those who cannot attend the resident or on-site courses (either in-house or by local universities where jointly developed). (Proposed action office: Service chiefs.)

40. That all departments submit at the earliest possible date justification required to establish equivalency determinations for all in-house and college courses supported through DOD participation. (Proposed action office: Service chiefs.)

41. That service chiefs encourage field installation commanders to expand their efforts with regional educational authorities to provide opportunities for upgrading the work force. (Proposed action office: Service chiefs.)

42. It is recommended that the services review their apprentice training programs for blue collar personnel to provide for shorter terms of indenture where appropriate and relate the indenture term more closely to actual trade training requirements. (Proposed action office: Materiel secretaries and director, DSA.)

ROLE OF LOGISTICS MANAGERS IN MANPOWER MATTERS

43. That the logistics chiefs identify key billets as military, civilian or interchangeable. (Proposed action office: Logistics chiefs.)

44. That the logistics commanders establish liaison on personnel policy matters with their personnel counterparts and appoint temporary working groups as necessary to resolve problem areas of mutual concern. (Proposed action office: Logistics commanders.)

45. That the functional chiefs participate in the evaluation of the operation of the planning, programing and budgeting system in their service. (Proposed action office: All logistics managers.)

46. That OASD (I. & L.) in conjunction with the services develop a position paper regarding the industrial fund ceiling including a concrete proposal that manpower spaces in industrial funded activities be removed from the general ceiling and allowed to fluctuate within a range of approved funding and workload. (Proposed action office: ASD (I. & L.) and materiel secretaries.)

47. That OASD (I. & L.) and the services determine their civilian billets requiring mobility and flexibility and prescribe billet standards. (Proposed action office: All logistics managers.)

MAINTENANCE MANAGEMENT

REVIEW OF COST AND PERFORMANCE

Mr. SIKES. Under maintenance management, you indicate that a more intensive review and analysis of your maintenance costs and performance is required to assess the impact of maintenance on equipment readiness. Does this mean that this area will be studied?

Mr. SHILLITO. I would think not as far as what we normally think of as studies. It is going to mean a significant amount of management attention is going to have to be given in this particular area to allow us to have the kind of information that will insure that the maintenance operations are being managed as efficiently and effectively as we want them to be. As I think we mentioned earlier in my comments the magnitude of our maintenance operations we feel warrant this attention.

IMPLEMENTATION OF DEFENSE POLICY

Mr. SIKES. Under policy implementation, on page 7 of your statement there is reference to the severe and continuing problem as regards the satisfactory implementation of Defense policies. This is certainly nothing new as past studies by this committee has disclosed. Why has this always been a problem? Is it because the Defense Establishment is so large that it is impossible for anyone effectively to follow up on policy directives to see if they are being implemented, or is it because of resistance within the military departments to the policies.

Mr. SHILLITO. Mr. Chairman, I guess I have been exposed to a sufficient number of large organizations to feel that this is always going to be something of a problem. The size of our organization certainly contributes to this. We have spent a lot of time working with industry and every large organization has this problem to a varying degree. We are giving much attention to the manpower piece of this thing, the training of our people to insure the kind of understanding that is necessary at the firing line, the kind of feedback that will allow us to insure the policies are being implemented. We are also giving much attention to policy implementation techniques—everything from video tapes and varying form of techniques in addition to the written policy which does not tend to get implemented as rapidly and as completely as we desire.

These two things, indoctrination of people and techniques, will be given much continued attention, sir.

Mr. SIKES. Do you feel that this will be adequate by which to address this specific problem?

Mr. SHILLITO. As far as we are concerned right now it will be as adequate as we can hope for it to be. I am inclined to think that we will never be completely satisfied with overall policy implementation. I would be inclined to think that most good managers would feel the same way, sir.

STUDY OF WEAPONS SYSTEM ACQUISITION PROCESS

Mr. SIKES. Under other areas of concern, you mentioned, Mr. Secretary, a total of eight such areas of concern which warrant your personal attention. Are any of these other areas being studied under contract?

Mr. SHULLITO. I think there may be one.

Mr. SIKES. If so, simply provide details for the record including the contract and the cost of the study.

Mr. SHULLITO. Yes, sir. I think we are getting some help on one of these from LMI.

(The information follows:)

Currently, we are thinking about having the Logistics Management Institute perform some needed study in the weapons systems acquisition process. We envision that this effort might encompass the following though no firm commitments have yet been made:

1. Develop, test, and recommend new concepts for systems acquisition.
2. Study applications of new technologies such as numerically controlled tools, advanced methods of communications and computers to problems of acquisition and support management.
3. Study a systems approach which considers the impacts on the acquisition process of programing and reprograming actions, specifications, proprietary data, patents, maintenance requirements, and supply support plans.
4. Study problems associated with competition when moving from development in a Government laboratory or industry to full scale production, viz documentation, technological transfer of skills and proper timing of move to production.
5. Develop systems for measuring, reporting and evaluating the effectiveness of Government personnel involved in the acquisition function and of contractors in performance of contract requirements.
6. Study means to provide more accurate cost predictions.
7. Study means of improving program management.

BUDGET BUREAU APPROVAL FOR STUDIES

Mr. SIKES. Your prepared statement indicates that the Bureau of the Budget has approved a study by the Logistics Management Institute on defense profits. Why would the Bureau of the Budget give separate sanction to a study to be undertaken by the Logistics Management Institute?

Mr. SHULLITO. Mr. Chairman, the requirement under the Federal Reports Act is that when we solicit information from, I believe, it is in excess of nine organizations we must have the approval of the Bureau of the Budget. We had the approval of the Bureau in the initial study, and that approval extended through this past year. It was our opinion that we needed to receive this profit data for another year. Therefore under the Federal Reports Act we went to the Bureau of the Budget and got approval to collect 1968 data.

LMI STUDY OF CONTRACT AUDIT/CONTRACT ADMINISTRATION INTERFACE

Mr. SIKES. Last year LMI was authorized to make a study of the contract audit/contract administration interface. What is your opinion of their recommendation that these operations be consolidated into a single independent agency?

Mr. SHULLITO. Mr. Chairman, in conjunction with the OSD Comptroller, Mr. Moot, we have established a small working group in-house,

to assess the LMI report and to consider the position and thinking of the Defense Contract Audit Agency. We have had only one meeting. The first meeting was primarily to assess the plan of attack on this group. We are due to meet again to further explore the LMI recommendations. I do not feel I should attempt to say I feel this way or that way until I have had a chance to assess all the inputs. I can see a number of benefits from the recommendation and I can see some potential problems as the result of it.

Mr. SIKES. Will you expand your answer on the record and give us the pros and cons on that as you see them?

(The information follows:)

CONTRACT AUDIT/CONTRACT ADMINISTRATION INTERFACE

Opponents would hold that organizational independence of contract auditors must be maintained; that consolidation would destroy this independence—impeir the objectivity and professional integrity of auditors, inhibit communication with top management, and destroy the esprit of the auditor force.

Opponents would also argue that consolidation would remove the contract auditor as a check and balance, inferring that close procurement pricing objectives would be weakened.

There are other arguments against the LMI recommendation to consolidate. Some would argue that the existence of operating problems have not been proved and that no specific adverse effects have been shown. They would cite that, even given operating problems, there are better alternatives available, short of re-organization. Some of these are cited in the LMI report.

Proponents of consolidation admit to the importance of the independent auditor theory, but claim that the functions performed by the DCAA for the contracting officer are not audit functions, but price and cost analysis functions. They claim it is not an independent effort, such as an internal audit function, but an integral element of contracting officers' responsibility for negotiation of fair and reasonable prices. Therefore, proponents state that the principal responsibilities of DCAA do not require that the organization be independent. Proponents also claim that consolidation would strengthen the Government pricing processes by uniformity of direction and the removal of industry opportunity to exploit differences between procurement and audit personnel.

Other arguments for consolidation include a potential for reduced operating costs, better utilization of skilled resources and reduction in procurement leadtime with attendant capital savings.

There are others, but the above represent the main pros and cons of the proposition.

Earlier, those were defined as being subjective. It can be seen, easily, that few are susceptible to measurement. There is no list of plus and minus numbers that can be totaled to give a clear result. Therein lies the main task for our working group charged with evaluating the question.

We will evaluate these matters under the LMI consolidation recommendation. We will similarly evaluate them for other possible courses of action. The ultimate decisions and actions cannot yet be predicted. In any event they will be directed toward basic objectives—efficient and effective pricing and other support to our contracting officials, and the full protection of Government interests in contractual operations.

BENEFITS OF LMI STUDIES

Mr. SIKES. LMI has been making studies in many areas for the Department of Defense for several years. In the last year, for instance, they have made studies of (1) "A Manager's Guide to the Acquisition of DOD Systems and Equipment," (2) "A DOD Systems and Equipment Production Planning Guide", and (3) "DOD Contract Management Conference." What relative accomplishments

have been realized from these various LMI studies, and are they really providing tangible benefits to the Department?

Provide the answer for the record.
(The information follows:)

LMI STUDIES

The Department of Defense has found that the efforts of the Logistics Management Institute on behalf of the Department have been of significant value and greatly enhanced the advancement of procurement and logistics objectives. The following comments provide further details on the three tasks noted as being accomplished last year:

A MANAGER'S GUIDE TO THE ACQUISITION OF DOD SYSTEMS AND EQUIPMENT

The purpose of this effort was to summarize the activity that must be performed by logistics managers throughout the process of acquiring weapons systems to insure that consideration of production and logistics are integrated into the early planning phases, requests for proposal, contract definition, engineering development and production. The guide will be directed at the inter-relationship between system design, production, and logistic support.

The guide developed, which is compatible with the "Integrated Logistics Support Planning Guide for DOD Systems and Equipment," provides summary descriptions of the key activities, decision points, and responsibilities essential to effective acquisition management. It emphasizes the conduct of tradeoffs and the recording of alternative approaches and supporting rationale for selected concepts and plans. The need for coordination between system design, logistics, and production management activities is emphasized.

Further consideration of this guide will follow review of the DOD Systems and Equipment Production Planning Guide.

DOD SYSTEMS AND EQUIPMENT PRODUCTION PLANNING GUIDE

The purpose of this effort was to describe in detail the activities that should be performed and other considerations involved in the acquisition of weapon systems to insure that production is planned for in the earliest phases and carried through the RFP, contract definition, engineering development, and production phases.

The guide developed describes project management activities and key decision points essential to effective production planning and outlines a systems approach to design, production, and logistics support. It is compatible with the "Integrated Logistics Support Planning Guide for DOD Systems and Equipment" and the "Manager's Guide to the Acquisition of DOD Systems and Equipment."

A review is in process of this LMI report by the military services, six industry associations, and 56 defense contractors. Comments from these groups will be reviewed and evaluated looking toward a thorough, complete, and operable guide.

DOD CONTRACT MANAGEMENT CONFERENCE

The LMI effort on this task was not, specifically, a study but to assist in carrying out a comprehensive contract administration conference. There were two separate areas of effort.

The first, in the preconference planning, was construction of a model on which to base conference reports and record of proceedings. A major conference usually results in a mass of data which must be structured and collated to be usable. Advantage was sought of some recent LMI experience in this regard.

The LMI contribution proved worthwhile and usable. It resulted in the more timely production of the conference record of proceedings. Preparation and editing effort was reduced. The succinct record format proved particularly valuable to a working group which was formed to process the 175 resulting recommendations.

Secondly, LMI participated in the conference itself, providing specialized technical assistance to the panel on management science in the procurement cycle. Most specifically, the advice and guidance of the LMI representative has resulted in a project to actively seek new applications of advanced scientific management techniques in contract administration.

COMMUNICATIONS

EFFORTS TO REDUCE COST

Mr. SIKES. Under "Communications," as you know, in its report on the Department of Defense appropriation bill for 1969, this committee was quite critical of Defense communications operations in general and we have had extensive discussions on the subject with the services and the Defense Communications Agency again this year. We are still not convinced that the benefits derived from the communication equipment and systems procured by the Department of Defense is commensurate with the cost. Since your office is the focal point for DOD telecommunications requirements, what steps have you taken to reduce the cost and requirements for such equipment and systems?

Mr. SHILLITO. Mr. Chairman, I personally share your concern. I am not inferring that the cost is too high or too low. Shortly after coming into office we initiated a functional review of our communications operations. This will encompass, among other things, the overall look at communications management at the OSD level. Our concern, in addition to a continuing interest in cost, is whether we are too fragmented at the OSD level relative to communications management responsibility.

As you know, Secretary Laird has made it clear that he plans to establish this blue ribbon panel, and the communications matter is of sufficient consequence that I would expect that it will be included among the functions they will look at—to consider its efficiency and effectiveness. I can only assure you, Mr. Chairman, that this entire matter is going to be given additional attention in the next few months.

Mr. SIKES. Will you keep this committee informed on what steps, if any, are taken in the direction indicated by my question?

Mr. SHILLITO. Yes, sir.

(The information follows:)

EFFORTS TO REDUCE COMMUNICATIONS COSTS

Steps taken to reduce cost and requirements are involved with actions completed, in process, and planned. The listing below recognizes this categorization. Further, reduction of costs and requirements has inescapable qualifications, that is, requirements will continue to increase and, therefore, cost savings may not always be in the form of reductions but in cost avoidances and economies. The expected increase in requirements is considered rational because it is the means for realizing lower inventories, less manpower, and essential greater capabilities in warning and command and control systems. Accordingly, communications requirements and costs will increase but the tradeoffs show up in other areas.

To insure that maximum benefits are derived from the communications equipment and systems procured and that they are commensurate with costs, numerous cost avoidance planning efforts and actions have been, and will be, taken on an accelerated basis. They include:

(a) Containment of expenditures by field commands by reducing per-item thresholds from \$500,000 to zero or manageable levels by requiring that all needs to expand or reconfigure the defense communications systems and facilities, particularly in Southeast Asia and Far East, be submitted for Secretary of Defense approval on a case-by-case basis.

(b) Reorientation of policies on procurement of defense communications systems (DCS) and facilities to one which will avoid costly, inflexible long leadtime to acquire fixed-in-concrete types in favor of "transportable" configurations which provide flexibility, high recovery/reutilization and lower out-of-program area cost features.

(c) Elimination of redundant, overlapping, and nonproductive organizations and efforts.

(d) Reevaluation of policies governing development of studies to avoid study efforts which do not result in positive conclusions and recommendations.

(e) Containment of costs of ongoing procurements and programs by imposing greater management by exception, reviews, controls, direction, and guidance at all levels.

(f) Reorientation of procurement specifications for defense communications systems and facilities from design to performance types to eliminate contractor exploitation of Government specification weaknesses and/or inadvertent loopholes which in the past has generated untenable escalations.

(g) Insuring that all requirements for defense communications systems, facilities and services emanating at all levels are quantitatively justified and in accord with force planning.

(h) Elimination of defense communications systems facilities and services which are redundant, overlapping and/or not cost effective. (Note: During the past year actions have been finalized to consolidate the major defense communications complexes of the Army, Navy, and Air Force on the east and west coasts of the United States into single facilities.)

(i) Achievement of optimized standardization of defense communications systems and facilities in order to achieve cost avoidance in training, operation/maintenance and logistics support areas plus realization of greater overall systems effectiveness.

CONSOLIDATION OF COMMUNICATIONS CENTERS

Mr. SIKES. It was apparent from our study of communications operation that a consolidation of communications centers with message centers and a reduction in the number of communications centers could be made without any adverse effect upon operations. Information provided by the committee and testimony presented this year indicates the services have not wholeheartedly complied with the various directives issued by the Department on this matter.

Do you plan on requiring that these consolidations be accomplished in the very near future?

Mr. SHILITO. Mr. Chairman, our analysis would indicate we plan to take action as quickly as we possibly can. Mr. Riley, would you care to comment on this?

Mr. RILEY. Yes, Mr. Chairman, we have taken an inventory of the number of these communications and message centers.

Our objective is to combine wherever feasible. There are more than 739 of them. We have consolidated 65 and we will continue to make progress.

Mr. SIKES. Will you expand on that for the record, including a schedule of consolidations?

(The information follows:)

A series of four policy memorandums have established the objectives and directed the military services and defense agencies to consolidate their communications centers and message centers into single telecommunications centers for each discrete geographical location. This is to be done in two phases: (I) Intra-Service consolidation of facilities; and (II) Interservice consolidation on geographical basis. The first milestone of phase I is the assignment of both functions under a single manager, the communications-electronics officer; even though physical plant or lack of automation precludes consolidation at this time. The next milestones are establishment of the total inventory and the immediate consolidation of those centers where feasible and the phasing by quarters for subsequent consolidations. A controlled quarterly report designates those consolidated during the past quarter, those selected for consolidation during the coming quarter, and a recapitulation.

Consolidation by geographical location is longer range and will be directed by OSD based on experience with problem definitions and solutions arising from the intraservice consolidations.

Because of the complexity and cost, the Washington area consolidation will be based on a plan prepared for OSD approval and considering automation, terminal equipment, and construction schedules. The current reported status is:

Army:

Total centers.
Consolidated.
Under consideration.

Navy:

Total centers.
Consolidated.
Under consideration.

Air Force:

Total centers.
Consolidated.
Under consideration.

STUDY OF DOD TELECOMMUNICATION

Mr. SIKES. It is planned that LMI will make a study of DOD telecommunications reconnaissance during fiscal 1970. What is this study intended to accomplish and what is the estimated cost?

Mr. RILEY. I am not aware of any such study.

Mr. SHILLITO. I am not aware that we made the decisions to have LMI do this.

Mr. SIKES. Provide a breakout for the record.

Mr. SHILLITO. Yes, sir.

This has been discussed but no decision as yet.

Mr. SIKES. Keep us posted if you decide to go ahead with it. Defense communications and the DCS have been studied almost yearly over the past several years, both in-house and by outside contractors. The committee made available a copy of its report to the Defense Department. All these studies have come up with the same problems time and time again. Why is it necessary to waste time and money on another study which will identify the same problems?

Mr. SHILLITO. Mr. Chairman, I really do not think we are going to need to make too many additional studies on this communication situation. I frankly think that this blue ribbon panel we are talking about and the synthesis of all the things that have been put together in the past should lead us to a conclusion.

Mr. SIKES. I am glad you said that. This committee feels it is time to take action and time to stop plowing over the same ground year after year.

Mr. SHILLITO. Yes, sir.

ALASKA COMMUNICATIONS SYSTEM

Mr. ANDREWS. Mr. Chairman, I think I read recently; I don't know whether it was your agency or not, selling the Alaska Communications System.

Have you discussed that yet?

Mr. SHILLITO. No, sir; that has not come up yet.

Mr. SIKES. You might bring us up to date on that. We discussed this. This is an old issue. The Government has been seeking to dispose of the Alaskan Communications Systems for years and now that

it is beginning to make a profit industry is much more interested in acquiring it. What is the present status of negotiation?

Mr. SHILLITO. We are not at the point of announcing the winner in the competition. This hopefully will be in the next few days.

Mr. SIKES. Do you think it is going through this time?

Mr. SHILLITO. Yes, sir.

We have gone through an extensive competition involving some eight or nine companies initially that were involved in the competition.

Mr. SIKES. Are you selling them the whole thing? Are they going to have to take over the whole operation or just the choice parts?

Mr. SHILLITO. No, sir; they are taking over the entire operation, as it now stands, sir.

The competition has been conducted in conjunction with the Governor of Alaska. His people have been sitting in on the way this was handled.

I think we are going to end up getting a decent price for the sale, sir. As a part of the competition we have made it vital or mandatory that service at least comparable to that which has been the case in the past be made available. Also, a significant capital investment on the part of the winner take place to bring about the long-range kinds of requirements that we visualize for that communications system.

Mr. SIKES. How many responsible bidders are participating?

Mr. SHILLITO. Sir; we got down to the point that they stood out. I understand it is four that stood out. We are now at the point of making the recommendation as to which of the four should be awarded the sale.

Mr. SIKES. When is it assumed that the private operation would begin?

Mr. RILEY. We will have to furnish that date for the record. It is shortly after July 1.

(The information follows:)

Since the testimony, the President has approved the sale of the ACS to RCA. While very worthwhile proposals were received from the three other companies, only RCA was at or near the top in all three of the major categories: investment in system expansion and improvement, rate reductions, and price to the Federal Government. Under these circumstances, the choice of RCA to purchase the ACS long-distance telephone and telegraph system was clear. We are satisfied that the system which RCA will develop over the next 3 years will provide high-quality service to the people of Alaska, and that the addition of this RCA-owned system to the Alaskan tax base, together with the very substantial rate reductions which RCA has guaranteed to make, will greatly benefit the economy in Alaska.

The transition from Government to private ownership of the ACS will begin this summer and be complete within a year. Very substantial benefits to the State of Alaska, including DDD, are in the offing and the process of making them a reality has begun.

SURVIVAL RADIOS

Mr. DAVIS. Mr. Secretary, one thing that sort of hit us in this communication area was one specific item. It had to do with radio survival kits or survival radios. In the course of testimony it was developed that the Navy was paying \$764 per unit for a two-channel radio and that the Air Force was paying something less than that amount. I believe it was in the \$612 bracket for a four-channel radio. We did not get any adequate answer, but it seemed that the problems of a man who needed that kind of equipment would be quite the same no matter what branch of the service he happened to be in.

It was suggested that this matter be brought to your attention and that you provide us for the record with the results of a check on this specific item, and what the justification might be for what appeared to be at least a duplicative development and procurement effort in meeting a similar requirement.

Mr. SHILLITO. Very good, sir. Mr. Davis, I appreciate your bringing this up. I am not familiar at all with the situation and have not looked into it. We will look into it. We will give you the details. It would appear that each of these—you know a two channel and four channel can be significantly different depending upon circumstances—it would appear that this would be the kind of thing that would be highly competed in each case.

We will give you the details either for the record or any fashion you might care.

Mr. DAVIS. I think it should be for the record.

Mr. SHILLITO. Very good, sir. I appreciate your bringing this up.

Mr. DAVIS. The thing that has hit us the hardest is that the Air Force radio had a four channel capability and the Navy radio two, and the Navy was paying more than the Air Force.

(The information follows:)

Both the Navy and Air Force survival radios operate in the same band (UHF) since rescue operations use internationally recognized channels. The Navy has been buying for the last few years the PRC-90 a survival radio which is a two-channel rescue radio. The Navy's current contract is for approximately 4,800 of these radios at an average unit price of \$731.

The Air Force has now agreed that its minimum requirements for SEA can be met by a two-channel radio, which can be satisfied by the PRC-90 or similar type, two-channel radio. Planned procurements by the Air Force within the near future will be for a two-channel radio. The Air Force presently has under contract some 17,300 four-channel radios for which they are paying an average unit price of between \$650 and \$700. The Air Force has requirements for survival radios for some 8,700 additional to meet SEA needs. These requirements will be satisfied by the two-channel radio, which will interface with other radios presently in the inventory.

Procurement for survival radios in fiscal year 1970 should be at an average unit cost of \$600 to \$650 for both Navy and Air Force requirements. The Defense Department is continuing to investigate the feasibility of developing a tri-service specification for a survival radio that can be used to meet all military departments' needs.

(Clerk's note: Additional discussion on survival radios appears on pages 723 through 726 and 1136 through 1140 of part 3 of the 1970 Defense appropriations hearings.)

VIETNAMIZATION PROGRAM

CONTROL OF SUPPLIES

Mr. SIKES. Under modernization and improvement of South Vietnamese Armed Forces, we have discussed instances of thefts and losses in Vietnam. As you know, we are embarked upon a program to modernize and improve the South Vietnamese Armed Forces, a program that will involve the procurement and shipment of huge amounts of equipment, supplies and material to that country. This brings up the concern as to whether or not the South Vietnamese will handle, store, and distribute this material without sizable thefts and losses. I am sure, Mr. Secretary, that you share this concern with us. Can you tell

the committee what steps have or will be taken to insure that such losses are kept at a bare minimum and that this equipment will not fall into the hands of the enemy? It is bad enough to get into the black market but it is worse to get it into the hands of the enemy.

Mr. SHILLITO. Yes, sir.

Mr. SIKES. The committee realizes once this material is out of U.S. hands we have effectively lost control of it. So will you bring us up to date on the general picture and what assurances we are seeking from the Vietnamese against these occurrences?

Mr. SHILLITO. Mr. Chairman, I am going to ask Mr. Riley to elaborate on this, if he can. The only point I would make is that, as you know, we are tied to the application of the Federal Assistance Act in the transfer of materials such as this to another country operating as a part of the MMAP program.

The recipient country agrees among other things when the articles are no longer needed they will be returned to the United States. It is of great interest to us right now. The commanding general MACV is presently working on detailed plans in connection with the overall improvement and modernization to bring about the organization, the expansion of the ARVN, and the control of our logistics support.

These plans have not been fully put together yet, sir. We are in the process of doing just exactly that. We share your concern.

Mr. Riley, do you want to add anything?

Mr. RILEY. I think we should expand on this for the record, Mr. Sikes, but in our previous visits to Vietnam we have discussed this very matter with the commanding general, First Logistics Command. You are aware of the fact we have had training programs going on in our depots over there to train the Vietnamese on stock control methods; we have set up security procedures. We are attempting to indoctrinate these people as best we can.

TURNOVER OF CONSTRUCTION EQUIPMENT

Mr. SIKES. In connection with this modernization and improvement program, a considerable amount of construction and roadbuilding equipment will be provided. Military witnesses have testified that wherever possible such equipment in the hands of U.S. military engineer units scheduled for return to CONUS—and presumably maybe Seabee battalions also—will be turned over to South Vietnamese troops before departure.

Has there been a screening of contractor construction firms in Vietnam with the same objective in mind insofar as U.S.-provided equipment is concerned?

Mr. SHILLITO. There is such a screening going on right now, Mr. Chairman. I am going to have to give you the details of this for the record but, as you know, most of our contractor work is accomplished by RMK-BRJ—

Mr. SIKES. With their own equipment?

Mr. SHILLITO. Yes, sir. And a phaseout plan for them has been developed and this phaseout plan does bring about—they are actually closing out operations in toto by July 1971. There are significant phase-downs between now and then, so the problem that you highlight is and should be a part of this overall phaseout plan, sir.

(The information follows:)

DISPOSITION OF RMK-BRJ EQUIPMENT

The equipment in the hands of the contractor is owned by the Government and was procured with military construction funds. The ultimate disposition of this equipment will depend on many factors to include the life expectancy of the contract operation, the condition of the equipment when the contractor is phased out, the residual construction capabilities remaining in Vietnam at this time, and the ability of agencies of the Government of Vietnam to absorb equipment.

Since the beginning of expanded operations in 1965, a considerable amount of contractor equipment has been worn out. A lesser amount has been made available to U.S. troop units as it became excess to contractor needs. Throughout the life of the contract there has been a continuing replenishment of the contractor equipment fleet as necessitated, depending on the type work to be prosecuted. It may be anticipated that the final disposition of this equipment will include the following:

- (a) That which is no longer usable or repairable will be disposed of as salvage.
- (b) Some will be transferred to any residual military capability which may remain.
- (c) Some will be returned to war reserve stocks of the U.S. Forces.
- (d) Some will be turned over to the Government of Vietnam, specifically to such agencies as their Department of Highways.
- (e) It is anticipated that very little, if any, of this equipment will be furnished to Vietnamese military units as it is nonstandard in terms of the military supply system and not suited to general capability military construction units.

RMK-BRJ WORK FORCE

Mr. SIKES. Last year Secretary Morris testified concerning plans to increase RMK-BRJ work force level from 17,000 to 22,000 personnel in order to free additional military engineer forces for deployment in forward areas. Has the contractor work force generally increased or decreased during the current fiscal year 1968?

Mr. SHILLITO. This increase is now at 24,761, composed of 2,282 United States, 1,998 third country nationals, and 20,481 local nationals.

Starting in July of this year the reduction of the RMK-BRJ contractor firm will commence and they will be reducing to approximately 18,000 by October of this year. We would plan to hold something pretty close to the strength for approximately 8 months from the October point.

PHASE-DOWN IN CONSTRUCTION ACTIVITY

Mr. SIKES. Since we are trying to achieve some kind of settlement of the conflict, it would appear there would be a more rapid phase-down of all construction activities which directly involve the U.S. Government.

Mr. SHILLITO. Yes, sir. You are absolutely right. We are assessing that as it now stands and, frankly, I am unable to give you an assessment as to what the impact of relocations will be other than to state that a significant portion of that which still has to be accomplished in the way of construction involves things that will be needed by the South Vietnamese Army and highways and this sort of thing.

Mr. SIKES. What kind of construction primarily are you talking about now?

Mr. SHILLITO. We have a lot of highway work that still has to be done.

Mr. SIKES. Is RMK doing that?

Mr. SHILLITO. Yes, sir. We have some airport hardening sites and this sort of thing that is in process.

Mr. SIKES. What are we doing in the delta? That seems to be where most of our troop withdrawal has taken place.

Mr. SHILLITO. Yes, sir.

Mr. SIKES. What are we doing there?

Mr. SHILLITO. I will have to give you the facts for the record.

Mr. SIKES. Provide a breakdown for the record on this and tell us more about your phase-down which is anticipated, with or without the coming of peace.

Mr. SHILLITO. Right.

Actually, when we pull a maneuver battalion out of Vietnam, for example, the construction tied to such an operation is comparatively minimal, as you can appreciate. We will give you this.

(The information follows:)

DELTA

The vast majority of the construction effort remaining in the delta will continue to be in support of the RVNAF. The modernization and expansion of the RVNAF is necessitating the construction of additional ARVN, popular force, and regional force camps along with major expansion of naval operating bases as a result of the shift of "Game Warden" responsibility to the VNN. The aircraft augmentation to the VNAF has required the expansion of Binh Thuy Air Base which is the only major airfield in the delta. Complementing these operational facilities is a necessary expansion of RVNAF support facilities including medical and logistical.

In addition to RVNAF facilities, U.S. support-type facilities for aviation, supply, medical, and communications have been constructed. Provision of adequate facilities for adviser personnel is also an important program.

Of singular importance is the LOC (highway) program for the delta. Continuation of this program of upgrading and constructing main routes is considered essential.

As yet the impact of the redeployment of the 9th Infantry Division on existing and programmed construction at Dong Tam is unknown. However, U.S. support units, particularly aviation, will remain. Base support facilities such as roads, drainage and erosion control, and utilities will still be required. In addition some facilities to accommodate ARVN troops may be necessary.

PLANS FOR CONTRACTOR PHASE-DOWN

Current contractor strength is 24,761.

Starting in July it is planned to reduce the contractor to 18,000 by October 1969. It is planned to hold this strength for approximately 8 months (until July 1970), and then phase down to closeout by July 1971.

This plan is based on current backlogs of facility requirements, including substantial requirements for continuation of highway upgrading and facilities associated with RVNAF modernization. It assumes that present requirements will continue undiminished.

It is subject to change depending on the rate of withdrawal and the ensuing impact on facility requirements, and is under continuing review.

In addition to the contractor capability the troop capability has a backlog of requirements which also will not be satisfied until mid-calendar year 1971. Again this projection assumes the continuing validity of present requirements and is subject to change, particularly with respect to withdrawals.

The combined construction capability of both contractors and troops must be considered against two areas of requirements: (1) facilities within the base structure and (2) engineering support of operational activities. Most affected by withdrawals are the capabilities associated with base facilities. That capability which is related to engineering support of operations will be essential as long as operations continue, however, it will be required in degree in relation to the magnitude and intensity of operations.

VIETNAM RECONSTRUCTION PROGRAM

Mr. ANDREWS. Mr. Secretary, I would assume that if and when peace returns over there, or the shooting stops, that there will be a terrific building program needed to restore South Vietnam from the damages of the war. Will the military do that work or who? I am sure this country will. Will that be under your jurisdiction?

Mr. SHILLITO. There is no plan under my jurisdiction right now, Mr. Andrews, to get involved in the kind of building program that you are suggesting might take place. I would think that that is conceivable. More likely, it would be under AID than under the Department of Defense. I would certainly hope so, sir.

Mr. ANDREWS. You would hope so?

Mr. SHILLITO. Yes, sir. It is conceivable that some of the same contractors might logically move to another branch of the Government, sir, should they be needed or should that kind of construction be required.

Mr. ANDREWS. There is extensive damage to the cities over there. Somebody is going to have to rebuild. I don't know of anyone who would do that except the U.S. Government.

CLAIMS FOR BOMB DAMAGE

Mr. SIKES. Mr. Secretary, this presumably is not within your sphere of rule, but you may be able to enlighten the committee to some extent. There has been very extensive damage to the countryside from bombing. That area is terribly pockmarked from the greatest concentration of bomb damage I guess in history. Somebody is going to want to be paid for that very seriously damaged property. Are there any plans in the mill to at least bulldoze that property level or to pay for the destruction of it?

Mr. SHILLITO. Not that I am aware of, Mr. Chairman. I will be glad to look into that.

Mr. SIKES. Provide anything for the record that is available.

Mr. ANDREWS. I wish you would put something in the record about it and give us a ballpark figure.

Mr. SIKES. Usable land is extremely valuable and scarce over there. Somebody is going to want to be paid for the damaged area.

Mr. SHILLITO. I have seen a few comments and editorials on this point. You are undoubtedly correct.

(The information follows:)

NATION BUILDING AND WAR DAMAGE

The Agency for International Development (AID) will have prime responsibility for development of nation-building programs in a posthostilities period. The Department of Defense now participates in some nation-building projects through the MACV civil operations—revolutionary development support (CORDS) organization. DOD agencies now work closely with AID on these projects and provide some funding support. In a posthostilities period, the objective of the Department of Defense is that responsibility for those nation-building projects which are not terminated would be transferred to the Government of Vietnam and/or U.S. civilian agencies as soon as practicable. Subsequent to transfer, such projects would no longer be financed from DOD military appropriations. The Congress has been kept fully informed concerning these projects, such as the roadbuilding program, which in addition to satisfying military requirements, also contributes to nation building. Further, facilities and equipment excess to military requirements will be made available to AID as required.

Concerning restoration of war damage in the Republic of Vietnam, the Government of Vietnam is responsible for all claims that are directly or indirectly related to the combat operations of South Vietnamese, United States, or other free world military forces. We are in the Republic of Vietnam in response to a request from the Government of Vietnam. The Government of Vietnam makes funds available under its military civic action program to satisfy indemnification claims by civilians under its control for war-related damages. These claims, including those for death or bodily injury and damaged or destroyed property, are processed and paid by the responsible South Vietnamese agency.

RMK-BRJ ORGANIZATION

Mr. DAVIS. Could you give us a little bit on the organization and the mission of this RMK-BRJ organization? I can recognize the MK and the BR, and I assume that is Morrison Knudson, Brown & Root?

Mr. SHILLITO. That is right.

Mr. DAVIS. For those who may not be fully familiar and in order that there will be continuity in the record, will you tell us what is the combine, how it operates, and something of the work that it has done?

Mr. SHILLITO. The combine is Raymond Morrison Knudson—this is the RMK—and the BRJ is Brown, Root and J. A. Jones. The idea, of course, was to have this contractor combine handle a significant portion of our construction work in South Vietnam that would be required as the war moved on and thereby free up our military people to concern themselves primarily with military operations.

The combine is managed by a comparatively small percentage of U.S. management people and is heavily—as far as its labor force is concerned—made up of local nationals. Of course, there are also some third-country nationals.

They cover the gamut of construction operations. They get deeply involved in the airfield construction. They get deeply involved in the hardening of sites, in our airfield operations. They do a lot of the waterfront work. I think most of the Cam Ranh Bay was put in by this consortium. They are deeply involved in maintenance facilities, in training facilities, storage, heavily involved in ammunition storage facilities, hospitals, dental clinics; the kind of normal construction that would be required under any set of circumstances in which you move this number of people into an area lacking the kind of facilities that these people would normally have to have.

Significant housing for troops and for management, utilities, electricity, sewage, water; they run the gamut of these kinds of things, sir.

As we suggested to the chairman's earlier comment, our plan now is to start moving toward a phaseout of the capabilities that have been developed by this—particularly this consortium, which does handle a major portion of all the construction or has handled a major portion of all the construction that has taken place in South Vietnam.

I don't know whether I have answered your question in an adequate fashion or not, sir.

Mr. DAVIS. They are paid entirely by the United States out of military construction funds? Is that where it comes from?

Mr. SHILLITO. Yes, sir; that is correct.

Mr. DAVIS. Thank you.

DAMAGE TO CONSTRUCTION PROJECTS

Mr. ANDREWS. Mr. Secretary, do you have any information as to the amount in dollars of damage done by the enemy to new construction projects such as airfields and the other items you have mentioned?

Mr. SHILLITO. I can't give you an assessment of that, Mr. Andrews. I have a personal opinion that probably the greater dollar damage is tied to cities and this sort of thing than to the construction-type things we have put in.

INDUSTRIAL PLANT EQUIPMENT

Mr. ANDREWS. Mr. Secretary, what new controls have been instituted to (a) maximize the use of our industrial plant equipment inventory in order to avoid new expenditures, and (b) to improve the management of such equipment held by contractors?

Mr. SHILLITO. I would like to make a couple of comments on our industrial plant equipment operations and then I would like to ask General Stanwix-Hay to comment on this if I may, sir.

For the first time since 1965 the total value of this property in the hands of our contractors has declined. I think it would appear to reflect an improvement in controls, the increased facility investment by contractors and some leveling off in the Vietnam procurement.

In looking at contractors' investment in total capital equipment which, by the way, actually came out of a sampling as part of that LMI study we talked about the other day, it would indeed tell us that their total capital investment has gone up significantly in the past few years.

I can touch on a number of positive things that have happened. There is a policy which was set up in early 1968 to encourage contractor investment. This is one that I think this committee is familiar with. We brought about an environment involving the discontinuance of furnishing of Government production equipment having unit costs of less than \$1,000 by a directive dated March 1968. A policy requiring contractors to express in writing their inability or unwillingness to provide Government plant equipment was published in April 1968. A bill was proposed which would permit negotiated sale of Government plant equipment to contractors. We have a number of things moving in this direction now to attempt to bring about these sales.

Instructions were brought about requiring contract adjustments reflecting downward adjustment of end item costs resulting from savings brought about by modernization of equipment and this was published as a part of ASPR in April 1968.

The Office of Emergency Preparedness, at our request revised the standard Government rental rates for industrial plant equipment upward and issued this in June 1968. The new rates were published as a part of a defense procurement circular in 1968 requiring contractors to establish and maintain Government equipment utilization records. A special inventory of all Government-owned property on loan to contractors, which was in process for about a year and a half, has recently been completed to include the reconciliation of our records and supplemental administration actions.

Procedures setting forth the conditions concerning use of Government property in the possession of Government contractors, including commercial use approval procedures and penalties for unauthorized use, are now published as a part of ASPR dated September 1968.

While all these actions have taken place, we do believe that a significant amount of additional attention has to be given to this area. We need to direct our concern to our policies again as to when facilities should go to contractors. Our GOCO operations, our policies regarding GOCO operations are rather obvious; policies involving instances where there is a preponderance of Government work and our policies relative to sale, when we should sell these facilities to contractors, et cetera. There needs to be a stratification as to what our policy should be across the spectrum of instances dealing with Government facilities. We will be giving additional attention to this and we anticipate now that some time in July we will be looking at a first draft of a policy that will attempt to do this.

Now, General Stanwix-Hay, would you care to elaborate further?

General STANWIX-HAY. As the secretary said, we hope to come out in July with a consolidated position in this area and again we will face the question which you raised, Mr. Sikes, of implementation because this is a question that is on the side of industry and regards Government-owned equipment which has to be very closely policed.

MULTISERVICE AIRCRAFT INTEGRATED EFFORT

REPAIR OF RF-4 AIRCRAFT

Mr. ANDREWS. Now we will discuss the multiservice aircraft integrated management effort. You mention the F/RF-4 as an example of a weapon system in which an increased effort is being made to provide integrated support management. Yet the Air Force and Navy are accomplishing the depot repair of this aircraft, each in their own separate facilities.

Is it planned to change the present arrangement for depot repair of F-4 airframes, engines, or components?

Mr. SHILLITO. I will let Mr. Riley elaborate on this, but we have mentioned that we do have in being five in-production aircraft, of which the F-4 is one, that are receiving this integrated weapon system management attention.

Mr. RILEY. The Navy and the Air Force will continue to maintain their own F-4 aircraft.

Mr. ANDREWS. Will you do that work in-house or by contract?

Mr. RILEY. They are doing it in-house, supplemented with some contract support. Before we began to make advancements in integrated weapon system management, the facilities, tooling and maintenance capability had already been purchased by the Navy and the Air Force, so there was no advantage to reverse that. Since they have the facilities, capability and tooling, it is likely that they will continue to maintain their own F-4 aircraft.

AIRCRAFT ENGINE DEPOT MAINTENANCE

Mr. ANDREWS. How will the repair on the A-7 be performed?

Mr. RILEY. We have an agreement with respect to the engines. The Air Force will perform depot maintenance on all TF-41 engines for both Navy and Air Force.

Mr. ANDREWS. The Air Force will do it in-house?

Mr. RILEY. Yes.

Mr. ANDREWS. What are your plans for depot repair of engines for the F-111A/D and the F-14A, which will have a common engine? Also the F-14B/C and the F-15, which will presumably use a common engine core?

Mr. RILEY. The Air Force and the Navy were working on a support agreement for the TF-30 engine. However, this work was interrupted with the termination of the Navy F-111 program. With the potential application of the TF-30 engine to the F-14A, F-111 and A-7 programs, we will need to take another look at this engine for integrated support.

With regard to the Navy F-14B/C and the Air Force F-15 engines, these aircraft programs have not progressed to a point in the development cycle where meaningful logistic planning can be accomplished. The Navy F-400 engine and the Air Force F-100 engine are currently in the initial engineering development stage. It is currently estimated that about 2 years will be required to complete development action on these engines. The OSD (I. & L.) will closely follow these engine development programs to assure coordinated logistics support planning in a manner that will provide for maximum economy and effective mission support of the aircraft involved.

Mr. SHILLITO. We do have time, sir, to make a decision regarding the depot maintenance of this engine.

Mr. ANDREWS. Mr. Secretary, is it your hope that you can get all the work done under the same roof, or by the same organization?

Mr. SHILLITO. Yes, sir.

Mr. ANDREWS. In doing so, would you hope to achieve savings?

Mr. SHILLITO. Mr. Chairman, it would be our plan, in looking at each of these, to have savings be a primary determinant in the decision that we make as to the integration of the support that you have reference to.

Mr. RILEY. The F-4 has gone too far, but there is agreement on the A-7. The Navy has the supply assignment and the Air Force is going to do the engine.

Mr. ANDREWS. Are we making progress in this area or merely standing still?

Mr. RILEY. I think we are making progress. We are making a great deal of progress, I think, in connection with the supply assignment. The more difficult area is maintenance. Our progress is slower there. The maintenance systems of the Departments are different. If we gave one of the Departments a job to maintain an aircraft or an engine for all of the Departments, there are some system interfaces that become quite complicated and have to be worked out. Therefore, we are approaching the maintenance area much more slowly than we do the supply area.

Mr. SHILLITO. A lack of consistency in the maintenance area, Mr. Chairman.

MULTISERVICE AIRCRAFT JOINT SUPPORT LISTS

Mr. ANDREWS. Will you provide for the record what multiservice aircraft joint support lists have been established?

Mr. RILEY. Yes, sir.

(The information follows:)

The following is a list of in-production and out-of-production multiservice aircraft for which integrated supply support assignment lists have been established. For in-production aircraft these lists are referred to as joint support lists (JSL's), and for out-of-production aircraft these lists are a part of the wholesale interservice supply support agreement (WISSA) for each aircraft.

Aircraft	Number of Items ^{1,2}	Supporting department	Supported department
F/RF-4.....	3 5,521	Air Force.....	Navy.
A-7.....	3 2,000	Navy.....	Air Force.
H-1.....	3 20,108	Army.....	Navy.
H-1.....	3 10,777	do.....	Air Force.
OV-10.....	3 900	Navy.....	Do.
H-53.....	3 1,600	do.....	Do.
A-1.....	3 9,325	do.....	Do.
C-47/C-117.....	410	Air Force.....	Navy.
C-54.....	643	do.....	Do.
C-118.....	800	do.....	Do.
C-119.....	502	do.....	Do.
C-121.....	3 116	do.....	Do.
C-121.....	3 150	Navy.....	Air Force.
C-130.....	2,866	Air Force.....	Navy.
C-131.....	232	do.....	Do.
T-28.....	320	do.....	Do.
T-29.....	(1)	do.....	Do.
QT/T-33.....	1,200	do.....	Do.
T-39.....	870	do.....	Do.
H-13.....	(1)	Army.....	Air Force.
H-34.....	5,710	Navy.....	Do.
H-34.....	490	do.....	Army.
U-1.....	(1)	Army.....	Air Force.
U-6.....	(1)	do.....	Do.
U-16.....	1,021	Navy.....	Do.

¹ The number of jointly supported items for each aircraft varies with time due to the transferring of item support management responsibilities, and changes to aircraft configurations. For example, there are approximately 19,000 common F/RF-4 support items, other than those listed above, which have been assigned to the Defense Supply Agency (DSA) for integrated management on a "commodity class" basis versus the "weapon system" basis.

² Does not include support items for those aircraft where the supporting department acts as the single procuring agent for replacement quantities of reparable-type items determined to be uneconomical for repair. Also, does not include those items qualifying for potential 2-way interservicing support, but which do not qualify for joint support listing because of their multi-aircraft application.

³ Approximate number of items. These are current production aircraft and lists have not stabilized.

⁴ Net figures are not maintained on number of items for the total H-1 program. Army support lists show the following numbers of items by aircraft model:

Army supports Navy:

UH-1D.....	10,308
UH-1E.....	2,669
UH-1G.....	7,129

Army supports Air Force:

UH-1H.....	9,485
UH-1F.....	1,292

⁵ Airframe.

⁶ Electronics.

⁷ Total support.

SMALL PURCHASES

CHANGES IN ASPR

Mr. ANDREWS. We will now discuss small purchase practices.

What can you tell us this year concerning your small purchase practices? When did you issue the new ASPR change imposing certain requirements upon prospective contractors with the aim of reducing overpricing in small purchases?

Mr. SHILLITO. I would like to have Mr. Malloy elaborate on this particular area, sir. A number of things have happened. The entire small purchase area is a management problem.

Mr. ANDREWS. What do you mean by small purchases? What kind of dollars are you talking about?

Mr. SHILLITO. We are talking about individual buys that are less than \$2500, Mr. Chairman.

The total procurement in fiscal year 1968 decreased over fiscal year 1967 from \$44.6 billion to \$43.7 billion. During the same period our small purchase actions in dollars decreased from roughly 8 million purchases for approximately \$1.8 billion to 7.4 million purchases involving expenditures of about \$1.6 billion.

We have done many things in the last year to improve small purchase operations. In 1967, we set up a small purchase improvement program and, as a result, the following has been accomplished:

Almost 3,000 small purchase buyers have received special training in the DOD small purchase course since November 1967. It is planned that another 2,000 buyers will attend in 1969. The aim of this course and the new Small Purchase Manual is to insure that the buyer determines that the price is reasonable before he awards a purchase order.

All the services and DSA are now making post-award reviews of small purchases to insure that buyers are doing a good pricing job. Top management is also making periodic reviews on a periodic basis to maintain surveillance in this area.

ASPR has been changed to require contractors to furnish the basis for their pricing when a small purchase is made. Contractors are asked to tell the buyer whether the price is based on a catalog or commercial market price and, if not, what the basis for the price is.

Consolidation of buys is being pushed. DSA tested a procedure that resulted in a 15 percent reduction in volume.

A feasibility study has been conducted on the greater use of computers for issuing small purchases. Consolidation of buys at the computer level could greatly reduce workload and expedite processing.

The action program has a total of 32 objectives on which much emphasis is being placed to insure price reasonableness on small purchases.

Mr. ANDREWS. It sounds like you are doing many things to try to get better prices for the services.

Mr. SHILLITO. Yes, sir.

FRAUDULENT PRACTICES

Mr. ANDREWS. I've been distressed in the last few years at certain actions on the part of supposedly reputable companies in this country. The conduct they have been guilty of is most reprehensible; joining together in conspiracies to fix prices and flimflam the public. The most recent case that I read about dealt with several plumbing concerns. They admit it, that they had entered into this unholy alliance and had flimflammed the public out of millions of dollars and they entered dissent decrees after two of them had been convicted. Prior to that, some of the supposedly reputable pharmaceutical companies had pled guilty to the same kind of fraudulent conspiracies, and several of the companies voluntarily put up, if I remember correctly, \$122 million to be distributed among the victims of their conspiracy.

You know, under the law, once you establish the existence of a conspiracy, then the injured parties are entitled to treble damages for the

overcharge, and I think in my State of Alabama the total treble damages for overcharges by these pharmaceutical companies amounts to around \$8 million.

Now, my question to you is, have the services been victimized by these conspiracies to fix prices on the part of some of the so-called reputable firms in this country?

Mr. SHILLITO. I hesitate to give you a general answer, Mr. Andrews, but it is entirely possible that on such things as you have touched on, plumbing supplies, pharmaceuticals supplies, involving small purchases, in which we may be using catalog prices, it is not inconceivable that we may on occasion be considered a victim, sir.

I will let Mr. Malloy elaborate on this, if I may.

Mr. MALLOY. Congressman Andrews, I haven't much to add to what the Secretary stated. I would say the Department of Defense, as a purchaser of these goods, would find itself in the same position as the General Services Administration and other Government agencies and there may be a case from time to time of overcharging.

Mr. ANDREWS. Defrauded or cheated, whichever word you want to use. In my book it all amounts to the same thing. The basis of it is fraud and selfishness.

Mr. MALLOY. I would say, Mr. Chairman, that to the extent the Government has been victimized in this way, the Government's claim against the offenders would be and is perhaps already being handled by the Department of Justice.

Mr. ANDREWS. I hope you make them pay through the teeth.

If I remember correctly several years ago, the Defense Department recovered some overcharges from some of the other big industrial giants of the country who were guilty of the same thing.

REVIEW OF SMALL PURCHASE PRACTICES

Mr. SIKES. What steps have been taken to spot check contracting offices and buying practices to insure that these new procedures are being followed and that prices paid for parts are reasonable? This refers to small purchase practices.

Mr. SHILLITO. We make the review I touched on, Mr. Chairman.

Mr. MALLOY. Mr. Chairman, we have instituted a system of management reviews that have been approximately quarterly where we send a team of skilled people right out to the activity and do an on-site survey of what is going on. By sending experienced people and senior people, we have found this to be very effective.

PROCUREMENT OF TECHNICAL DATA

Mr. SIKES. Under procurement of technical data, what progress has been made in the past year in determining the cost of technical data? What I am trying to determine is whether new, meaningful statistics on technical data costs have been developed.

Mr. SHILLITO. We realize that technical data represents a very significant dollar value. We estimate that we are talking about something between \$1.5 billion to \$2 billion that is spent annually for technical data within the Department of Defense.

In December of 1968 DOD issued an instruction, 5010.12, that spelled out the definition of technical data. It is clearly compatible with the definition included in ASPR. It definitizes responsibilities of the data managers, the data review boards, the functional managers, and gives more specific instructions for using and completing the DOD forms 1423 involving the ordering and delivering of data.

The instruction goes into detail as far as insuring the quality of data is concerned, through inspections, establishing storage, and retrieval systems relative to data, establishing data management improvement programs, a clearer description of data management organizational entities, and increased emphasis on the training of data management people.

Now, I would like Colonel Elder to elaborate on the matter if he can, Mr. Chairman, for just a moment.

Colonel ELDER. The problem of getting the prices on what we are paying for technical data has been worked on for some time. It is difficult to gather some of this data. In April we issued some new guidance for the budget that will result in gathering technical data costs, not as a line item, but as an exhibit in the budget. We are asking for these data costs to be included for the various major appropriations and broken down into five different categories that will cover all the costs.

For example, we are asking the services to identify costs of engineering drawings, provisioning documentation, technical manuals; all other types of technical data; and finally administrative and financial data. This will be summarized at each level of the budget and we then will for the first time get a realistic idea of what technical data is costing us.

There is one point I might mention. These costs that we are collecting will be what we call the "over and above costs of data." There are two costs. One is the cost to the contractor to prepare this data, but he has to do this in the normal manufacture of the hardware.

There is another cost, then, which is directly chargeable to the Government for the data items that we order on our DD form 1423. What we are gathering in this first attempt is the actual cost of data items to the Department of Defense over an above what the contractor has to spend in developing the drawings and other technical data for production of the hardware.

That guidance has been issued and we will see the results in the fiscal year 1971 budget.

DOD AUTHORIZED DATA LIST

Mr. SIKES. We have discussed for the past 2 years the objective of the development of a DOD-wide authorized data list. What progress can you report in this area?

Colonel ELDER. We have been carrying on quite intensive efforts in this area for some time.

At the present time we have taken three steps in coming out with what we call a DOD-authorized data list. The first step was to devise and get agreement for the use of a single form for data item descriptions, the DD form 1664. By the end of this calendar year all departments/agencies are scheduled to describe their data items on this form.

The second step that we have taken is to arrive at a common numbering system for all of these data item descriptions. Prior to this time, each of the departments/agencies had their own listing and a separate numbering system. We now have a common numbering system. Also, we have arrived at a common set of categories. The services have broken down their data item descriptions into different categories. We now have a common set of 12 categories into which data item descriptions are segregated.

The third step is the publishing in one index all of the data item descriptions of all the departments/agencies. This will be published in what we call a technical data document and will disclose to all who are interested the data items all the departments/agencies have.

In support of these actions, we have made arrangements for central stocking and distribution of these data item descriptions. They will all be stocked and distributed similar to our specifications and standards from the Naval Publications and Forms Center in Philadelphia. This will provide the user with a single ordering point once he identifies his needs.

Mr. SULLIRO. We should have the first piece of the authorized data list, which has been drafted, released within the next few months.

Colonel ELDER. Yes, sir. The military departments have already isolated a few items of data that can possibly be considered uniform.

Mr. SIKES. Provide any additional information that you have on that for the record.

(The information follows:)

Plans and procedures are now being developed for reviewing the data item descriptions of the various departments and agencies to develop common items wherever practical. Several factors have an impact on the completion of this major task in achieving a DOD authorized data list. First, all data requirements are not scheduled to be converted to the DD Form 1004 (data item description) until January 1, 1970. Accordingly, only fragmented reviews will be possible prior to that time. Secondly, many of our technical data requirements emanate from management systems which are implemented according to the different mission and organizational requirements of the departments and agencies and this results in the data item being discreet to the needs of the user. As our management systems are standardized within the DOD we will attain a higher degree of common data items.

PROBLEMS WITH TECHNICAL DATA MANAGEMENT

Mr. SIKES. I would like for you to review for the record any progress made in solving the many problems discussed last year concerning technical data management.

(The information follows:)

TECHNICAL DATA MANAGEMENT PROGRAM

The technical data management program is proceeding along two courses of action. The first of these is a pattern of management enunciated in the revised DOD Instruction 5010.12, "Management of Technical Data." Unlike the previous edition which concentrated on the determination of requirements for data and acquiring that data from contractors, the current directive deals with life cycle data management from the design through disposal phases of the hardware it supports. Key elements of this instruction have been mentioned above. The implementation of the instruction is being monitored, and all implementing regulations and instructions are being reviewed and subject to verification.

The second course of action is directed toward improving the data product and management of the technical data program. Toward this end, the steps taken to develop the DOD-ADL and the budget guidance, mentioned above, are signi-

fluent improvements. In addition, a detailed guide for evaluating the validity and realism of data price proposals has been included in the pricing manual as an additional tool for minimizing data costs. There have also been several refinements to the data pricing policies in amendments to the ASPR: (1) A new requirement has been included to show the total data package, and "hi-dollar" value data items such as technical manuals and engineering drawings, as separate contract line items. Such line item prices will be negotiated and a firm price for data established; (2) A "nonresponsive" clause has also been included in this ASPR revision, which may be invoked if and when a contractor fails to furnish data price estimates on negotiated contracts. The data pricing requirement for formally advertised contracts has been deleted. (Here we shall rely upon the market and competition to establish reasonable prices for data as we do for hardware.)

In recognition of the heavy demand and need to "spread the word," a series of seminars are being conducted in 21 locations throughout the country. These seminars were started early this year and are scheduled to be complete by the end of July at which time approximately 4,000 DOD personnel will have been exposed to the DOD technical data management program. In addition, our formal three-week course of instruction in technical data management is continuing to produce approximately 100 graduates per year. As a supplement to this course, 2 to 3 hour "blocks of instruction" on technical data management were developed for use in related courses (e.g., procurement, maintenance, weapons system management, etc.). The training materials were made available to all departments/agencies for use, and approximately 4,000 students were exposed to these synopsis lectures during the past year.

Finally, a specification covering the quality of technical data is being developed. When inserted as part of the contract, the contractor will be required to establish a program which will assure the delivery of adequate and accurate data.

COMPETITIVE PROCUREMENT

Mr. SIKES. Under "Competitive procurement," Mr. Secretary, what progress is being made in the area of competitive procurement, both formally advertised and competitively negotiated.

There is the widespread feeling that here is the big hole through which costs multiply and escalate. This committee understands the problem and we know that you are seeking to make progress in obtaining more competitive procurement, but tell us what you are doing.

Mr. SHILITO. Yes, sir.

Mr. Chairman, we will give you a more detailed rundown for the record as to the specifics that are taking place with regard to improving competition in defense procurement.

As you know, there has been a slight decline in price competition in fiscal year 1968 over fiscal year 1967, going from 42.9 percent in 1967 to 37.7 percent in 1968. If design or technical competition were included the figures would be 47.5 percent for fiscal year 1967 and 42.1 percent for fiscal year 1968.

I think we should emphasize, that if we were to look at all competition, plus follow-on buys after initial competition, we are talking about 60 percent of our total dollars, either as price or design competition and follow-on buys after initial competition.

In the past several years a number of things have come about to change the competitive environment. We have had some heavy non-competitive buys of such things as ammunition. A significant change in our product mix has occurred—a proportionately greater increase in major hard good purchases than in soft goods and consumables. Our major weapons systems cannot be price competitive. As you know, a change in the definition of price competition was made which had an impact on the numbers.

PURCHASE OF AMMUNITION

Mr. SIKES. Why would ammunition have to be purchased without competitive bidding?

Mr. SHILLITO. Actually, Mr. Chairman, substantial quantities of ammunition and other ordnance materials are acquired from our GOCO facilities. These are not recorded as competitive buys. Would you like to elaborate on this, General Stanwix-Hay?

General STANWIX-HAY. The GOCO buys are not competitive because they are done in Government-owned shell loading plants. But much of the material, the components, the pieces are bought competitively. The only time we would not go competitive is when it is necessary to maintain mobilization base suppliers or because of timeliness, that is, we do, not to have the administrative leadtime.

Mr. SIKES. Will you complete this answer for the record in detail? (The information follows:)

Ammunition, with the exception of small arms, are contracted for in terms of their components. Therefore, the opportunity for competition is limited only by the capabilities of industry. Because of the lack of a significant munitions industry in the United States the Government established in World War II and Korea an in-house capability to produce those components for which capacity was either not available or limited in the private sector. These Government ammunition plants produce almost all the propellants and explosives which we procure as well as some metal parts for which there is limited capability in the U.S. industry. These plants are termed GOCO plants (Government-owned contractor operated) and are awarded contracts on a cost-plus fee basis. GOCO plants account for about 50 percent of the fiscal year 1969 expenditures to date for ammunition.

However, many of the components required in GOCO operations are sub-contracted on a competitive basis. The balance of components is contracted for competitively when sufficient capability and interest exist and when time permits the administrative time required for competitive awards. During the buildup phase for the Vietnam conflict both time and the interest and capability of industry were limited, so many items were negotiated with producers of known and proven capability rather than in open competition. Now that the buildup has been essentially accomplished with the fiscal year 1969 procurement it is anticipated that there will be an increase in competitive procurement of ammunition components with the fiscal year 1970 buy.

TRENDS IN COMPETITIVE PROCUREMENT

Mr. SIKES. For the record, would you provide statistics showing the trend in competitive procurement for the last 7 years?

Mr. SHILLITO. Yes, sir.
(The information follows:)

COMPETITION IN MILITARY PROCUREMENT

Type of Competition	FY 1962		FY 1963		FY 1964		FY 1965		FY 1966	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
	Total									
TOTAL	\$29,254,502		\$29,378,720		\$28,796,284		\$27,997,037		\$28,243,107	
INTRAGOVERNMENTAL	1,155,481		346,516		561,746		612,470		1,015,601	
TOTAL, EXCEPT INTRAGOVERNMENTAL	28,099,021	100.0%	29,032,204	100.0%	28,234,538	100.0%	27,384,567	100.0%	27,228,506	100.0%
COMPETITIVE (SUB-TOTAL)	11,088,807	39.5	11,855,328	40.8	12,712,193	45.1	13,229,812	48.7	18,601,132	50.0
Formally Advertised	3,544,619	12.6	3,677,879	12.7	4,071,587	14.4	4,817,214	17.6	5,283,158	14.2
Small Business and Labor Surplus Area Set-Asides	1,422,095	5.1	1,382,162	4.8	1,535,557	5.5	1,622,312	5.9	1,751,243	4.7
Open Market Purchases of \$2,500 or Less Within the U. S. b/	1,069,441	3.8	1,280,338	4.4	1,337,665	4.7	1,392,953	5.2	1,704,868	4.6
Other Price Competition	3,966,434	14.1	4,423,366	15.2	4,083,653	14.5	4,051,453	14.8	7,799,664	20.9
Design or Technical Competition	1,086,218	3.9	1,091,583	3.7	1,600,731	6.0	1,446,860	5.3	2,062,199	5.6
NON-COMPETITIVE (SUB-TOTAL)	17,010,214	60.5	17,175,876	59.2	15,522,345	54.9	14,052,755	51.3	18,627,372	50.0
Follow-on After Price or Design Competition	10,458,525	37.2	9,493,500	32.7	8,876,044	31.4	7,053,773	25.8	7,448,985	20.0
Other One-Source Solicitations	6,551,689	23.3	7,682,376	26.5	6,646,301	23.5	6,999,982	25.5	11,178,387	30.0

Type of Competition	FY 1967		FY 1968	
	Amount	Percent	Amount	Percent
	Total			
TOTAL	\$4,637,600		\$3,755,544	
INTRAGOVERNMENTAL	1,251,540		982,136	
TOTAL, EXCEPT INTRAGOVERNMENTAL	3,386,060	100.0%	2,773,408	100.0%
COMPETITIVE (SUB-TOTAL)	20,614,164	67.5	18,014,110	62.1
Formally Advertised	5,791,979	13.4	4,801,571	11.5
Small Business & Labor Surplus Area Set-Asides	1,936,012	4.5	1,833,452	4.3
Open Market Purchases of \$2,500 or Less Within the U. S.	1,841,300	4.7	206,110	2.1
Other Price Competition	9,047,937	20.8	8,456,416	19.3
Design or Technical Competition	1,997,833	4.6	1,896,590	4.4
NON-COMPETITIVE (SUB-TOTAL)	22,766,099	72.5	24,772,029	77.9
Follow-on After Price or Design Competition	7,984,234	18.1	7,702,358	18.0
Other One-Source Solicitations	14,922,665	34.4	17,035,671	39.9

Mr. SHILLITO. Mr. Chairman, there might be one other point that would warrant mentioning here. If we were to stratify all of our buying, you would find that in construction, which is very competitive—and procurements placed by the Defense Supply Agency, which are also very competitive—there has been no significant change in our accomplishments—the shift in the overall product mix takes place because of increased buys in ammunition helicopters and other major systems. Individual segments of our total buying are just as competitive as they ever were. In other words, these gross numbers sometimes tend to mislead us a little bit unless we separately analyze them and look at the individual elements.

Mr. MALLOY. We are talking about a ratio—a percentage figure—and the percentage method is a good way to measure as long as your base—that is, your product mix—is constant, but when your base does change, the ratio may go down but in fact there could be more competition.

We have to live with the inadequacies of this measurement, but for our own management purposes, we examine this in detail—looking at the ingredients that go into it.

Mr. SIKES. At this point provide the detailed explanation as to the specifics that are taking place with regard to improving competition.

Mr. SHILLITO. Yes, sir.

(The information follows:)

NEW PROCUREMENT PROCEDURES AND TECHNIQUES TO INCREASE COMPETITION

The following are examples of the kinds of new procurement procedures and techniques that have been developed in response to management's goal of increased competition and greater efficiency. These are things that we are doing to alter previously existing conditions to enable us to obtain greater competition:

TWO-STEP FORMAL ADVERTISING

This is a method to obtain price competition under a sealed bid arrangement when available specifications are not adequate for conventional formal advertising. Conventional formal advertising requires that available specifications must be adequate to describe the product being purchased. One of the major reasons that the Department of Defense uses negotiated contracts is that adequate specifications do not exist for many of the things we buy. That is particularly true with complex equipments. In the first step of two-step formal advertising, unpriced technical proposals are solicited and evaluated to screen out unresponsive proposals. The second step is a sealed bid procedure similar to regular formal advertising but participation is limited to those firms that submitted acceptable technical proposals in the first step.

MULTIYEAR PROCUREMENT

Under this procurement technique, competition is obtained for current and future firm requirements for supplies and services, with award made to the lowest bidder on the requirement. Funds are obligated annually, as appropriated, on each program year's increment. With the assurance of continuity of performance and distribution of startup costs to larger requirements and over longer periods, and with elimination of potential recurring startup costs, we not only obtain substantially lower unit prices than we could get by annual competitions, but increase the number of suppliers interested in participating in the competition. In fiscal year 1968, \$1.5 billion was obligated both for new multiyear procurements and for second and third program year increments of multiyear contracts awarded in prior years.

SPARE PARTS BREAKOUT

This program was initiated specifically to increase competitive procurement in replenishment spares and repair parts. Most of the manufacturers who are the prime contractors for our complex and sophisticated weapons systems, such as an airplane, rely upon subcontractors and vendors for spare parts. This program identifies those spare parts which have a high dollar value and identifies the supplier. The Government then attempts to obtain competition among a wide range of spare parts suppliers. If competition is not possible, the Government may purchase the part directly from its manufacturer to eliminate handling, overhead charges, and profit which are added to its price by the prime contractor.

On the basis of the best available figures, competition in this area has increased approximately 65 percent since the program was initiated in 1963. The following tabulation shows the total replenishment spare parts procurement in the last 4 fiscal years and the competitive ratios:

(Dollar amounts in millions)

Fiscal year:	Total dollars	Competitive	
		Dollars	Percentage
1965.....	\$1,625.6	\$754.1	46.4
1966.....	3,543.6	1,672.7	47.2
1967.....	3,869.1	1,752.1	45.3
1968.....	3,689.0	1,627.1	44.1

COMPONENT BREAKOUT

Another means by which we obtain competition should be mentioned briefly. It is by "breaking out" components of major systems for competitive procurement where this can be done without endangering safety or operational effectiveness. For example, we buy the aircraft engines competitively and furnish them as Government-furnished property to the manufacturers of the aircraft. We buy many substantial components competitively, including the electrical, radar, and armament sections of the aircraft and furnish them to the aircraft producer. We do this to the extent that it is economically beneficial.

ADVANCE PROCUREMENT PLANNING

Advance procurement planning is a means by which the efforts of all personnel responsible for the procurement of defense material by contract are coordinated as early as practicable in order to obtain required items of the requisite quality on time and at the lowest sound price. It involves the prospective analysis of requirements and the documentation of technical, business, policy, operational, and procurement considerations into a comprehensive procurement plan. These considerations include all operational requirements (time and mission goals), technical objectives (performance, reliability, and so forth), economic factors (potential costs), use of appropriate contract techniques, and compliance with procurement regulations and policies. Potential conflicting interfaces and any resulting essential tradeoff decisions must be recognized to accomplish a sound material procurement program. Advance procurement planning establishes and graphically portrays realistic milestones to be met in achieving the goals of a specific program. The advance procurement plan serves as the principal long-range procurement planning document charting the course of major procurement programs over their life cycle, keyed to the Department of Defense 5-year defense program.

EFFORT TO SEEK NEW SUPPLIERS

Every proposed advertised or negotiated procurement which may result in an award in excess of \$10,000 for supplies and services in the United States—except for classified procurement and a few other specified situations, such as the procurement of perishable subsistence—is published in the Commerce Business Daily, "Synopsis of U.S. Government Proposed Procurement, Sales, and Contract Awards." This is a daily publication (circulation 23,000) published by the De-

partment of Commerce which is available to any and all suppliers who wish to do business with the Government. The publication of proposed procurements alerts suppliers not only to the possibility of obtaining prime contract awards but also subcontract awards. In fiscal year 1961, the amount of proposed contract awards synopsisized was 14.4 percent, rising to 58.5 percent in fiscal year 1968.

In addition, we are constantly seeking new producers. During fiscal year 1968, we participated in 33 conferences throughout the United States attended by over 12,000 businessmen. The major purpose of these conferences was to interest new sources in bidding on our procurements either as prime contractors or subcontractors. Over 4,000 potential new suppliers were obtained through this technique.

Mr. SIKES. Thank you very much.

The committee will now adjourn until 2 o'clock, at which time we will have the Assistant Secretary of Defense for Administration.

Mr. Secretary, you and your associates have been very helpful to the committee.

MONDAY, JUNE 23, 1969.

**BUDGET FOR SECRETARIAL ACTIVITIES FOR
FISCAL YEAR 1970****WITNESSES**

- HON. R. F. FROEHLKE, ASSISTANT SECRETARY OF DEFENSE
(ADMINISTRATION)**
- D. O. COOKE, ACTING PRINCIPAL DEPUTY ASSISTANT SECRETARY
OF DEFENSE (ADMINISTRATION)**
- C. W. FISHER, DIRECTOR, BUDGET AND FINANCE DIVISION, OASD
(ADMINISTRATION)**
- M. C. SNYDER, CHIEF, BUDGET BRANCH, BUDGET AND FINANCE
DIVISION, OASD (ADMINISTRATION)**
- MAJ. GEN. D. I. LIEBMAN, U.S. AIR FORCE, DEPUTY DIRECTOR OF
THE JOINT STAFF**
- J. C. BROGER, DIRECTOR, OFFICE OF INFORMATION FOR THE
ARMED FORCES, OASD (MANPOWER AND RESERVE AFFAIRS)**
- DR. N. BRODSKY, ACTING DEPUTY ASSISTANT SECRETARY OF
DEFENSE (EDUCATION), OASD (MANPOWER AND RESERVE
AFFAIRS)**
- J. F. KUNZ, DEPUTY DIRECTOR FOR FINANCE, SUPPLY AND ADMIN-
ISTRATION, U.S. ARMED FORCES INSTITUTE**
- R. G. CAPEN, JR., PRINCIPAL DEPUTY ASSISTANT SECRETARY,
ASSISTANT SECRETARY OF DEFENSE (PUBLIC AFFAIRS)**
- BRIG. GEN. LEO E. BENADE, U.S. ARMY, DEPUTY ASSISTANT SEC-
RETARY (MILITARY PERSONNEL POLICY), ASSISTANT SECRE-
TARY OF DEFENSE (MANPOWER AND RESERVE AFFAIRS)**

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

	1968 actual	1969 estimate	1970 estimate
Program by activities:			
Direct program:			
1. Supply operations.....	575,587	610,504	609,364
2. Field operations.....	351,064	412,253	440,443
3. Interdepartmental activities.....	71	61	
4. Management.....	39,889	48,621	48,193
Total direct program.....	966,611	1,071,439	1,098,000
Reimbursable program:			
1. Supply operations.....	33,141	33,100	33,100
2. Field operations.....	12,813	10,781	10,520
4. Management.....	90	30	30
Total reimbursable program.....	46,044	43,911	43,650
Total obligations.....	1,012,655	1,115,350	1,141,650
Financing:			
Receipts and reimbursements from—			
Federal funds.....	-38,607	-36,493	-36,239
Non-Federal sources ¹	-7,437	-7,418	-7,411
Unobligated balance lapsing.....	2,413		
Budget authority.....	969,024	1,071,439	1,098,000
Budget authority:			
Appropriation.....	970,599	1,036,800	1,098,000
Transferred to other accounts.....	-2,681	-7,621	
Transferred from other accounts.....	1,106	1,760	
Appropriation (adjusted).....	969,024	1,030,939	1,098,000
Proposed supplemental for wageboard increases.....		3,500	
Proposed supplemental for civilian Pay Act increases.....		37,000	
Relation of obligations to outlays:			
Obligations incurred, net.....	966,611	1,071,439	1,098,000
Obligated balance, start of year.....	82,204	81,541	91,980
Obligated balance, end of year.....	-81,541	-91,980	-109,980
Adjustments in expired accounts.....	-3,674		
Outlays, excluding pay increase supplementals.....	963,599	1,021,700	1,078,800
Outlays from wage-board supplemental.....		3,400	100
Outlays from civilian Pay Act supplemental.....		35,900	1,100

¹ Reimbursements from non-Federal sources are principally from sales of surplus U.S. Government property to finance expenses in connection therewith (annual appropriation act); sale of goods and services to individuals, including laundry services and surcharges on commissary sales (10 U.S.C. 2205, 2210, and annual appropriation act); charges for unofficial telephone service (10 U.S.C. 2481) and revenues from private carriers for use of Department of Defense-owned rail cars (10 U.S.C. 2667).

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1968 actual	1969 estimate	1970 estimate
Personnel compensation:			
Permanent positions.....	568,015	606,114	598,935
Positions other than permanent.....	11,090	9,054	9,175
Other personnel compensation.....	12,939	14,554	14,448
Special personal service payments.....	590	627	641
Total personnel compensation.....	592,634	630,349	623,199
Direct obligations:			
Personnel compensation.....	560,222	597,784	590,717
Personnel benefits: Civilian.....	44,512	47,662	47,351
Benefits for former personnel.....	4		
Travel and transportation of persons.....	17,598	19,396	20,011
Transportation of things.....	3,257	5,252	4,755
Rent, communications, and utilities.....	57,905	81,107	93,390
Printing and reproduction.....	7,329	7,739	8,060
Other services.....	222,013	256,595	273,726
Supplies and materials.....	47,959	49,327	52,714
Equipment.....	5,775	6,534	7,233
Grants, subsidies, and contributions.....	11	11	11
Insurance claims and indemnities.....	26	32	32
Total direct obligations.....	966,611	1,071,439	1,098,000
Reimbursable obligations:			
Personnel compensation.....	32,412	32,565	32,481
Personnel benefits: Civilian.....	2,557	2,582	2,577
Travel and transportation of persons.....	740	751	727
Transportation of things.....	65	46	45
Rent, communications, and utilities.....	4,268	3,076	3,128
Printing and reproduction.....	197	197	197
Other services.....	2,939	2,282	2,251
Supplies and materials.....	2,539	2,268	2,100
Equipment.....	323	144	144
Grants, subsidies, and contributions.....	4		
Total reimbursable obligations.....	46,044	43,911	43,650
Total obligations.....	1,012,655	1,115,350	1,141,650

PERSONNEL SUMMARY

Total number of permanent positions.....	69,240	66,640	66,260
Full-time equivalent of other positions.....	2,439	2,047	2,059
Average number of all employees.....	69,084	68,936	67,943
Average GS grade.....	7.9	8.0	8.0
Average GS salary.....	\$8,663	\$9,033	\$9,067
Average salary of ungraded positions.....	\$6,066	\$6,414	\$6,422

Mr. SIKES. The committee will come to order.

We are indeed pleased to have with us today the Assistant Secretary of Defense for Administration, the Honorable Robert F. Froehle, who will present and defend the fiscal year 1970 request for Secretary of Defense Activities, the Organization of the Joint Chiefs of Staff, Inter-Departmental Activities, and the operations of the Armed Forces Information and Education Directorate.

It is, indeed, a pleasure, Mr. Secretary, to welcome you on your first appearance before the committee. I note the comment in the first paragraph of your statement concerning your desirability of establishing a good working relationship with the committee. We welcome your comment and we are confident there will be a mutually good relationship between us. Since this is your first appearance before the committee, we will insert your biographical sketch in the record at this point.

(The biographical sketch follows:)

ROBERT F. FROEHLKE, ASSISTANT SECRETARY OF DEFENSE (ADMINISTRATION)

Robert F. Froehlke was born October 15, 1922 at Neenah, Wis. He graduated from Marshfield Senior High School, Marshfield, Wis., in 1940. In June of 1949 he received his LL.B. Degree from the University of Wisconsin Law School (Order of COIF).

Mr. Froehlke is a veteran of World War II where he served in the infantry in the European theater of operations. He enlisted in June of 1943 and received his honorable discharge as a captain in September 1946.

Mr. Froehlke was an associate in the Madison, Wis. law firm of McDonald and MacDonald from 1949 to 1950. At that time he joined the faculty of the law school of the University of Wisconsin.

In the fall of 1951 he resigned from the law school faculty and joined the legal department of Sentry Insurance in Stevens Point, Wis., where he became assistant general counsel.

In 1959, Mr. Froehlke became executive vice president of Sentry Life Insurance Co. and in 1967 was named vice president-sales for the Sentry Insurance Co.

In August 1968, he was named resident vice president of Sentry Insurance in Boston, Mass., where his family presently resides at 89 Thornberry Road, Winchester, Mass. On January 21, President Richard M. Nixon nominated Mr. Froehlke to be Assistant Secretary of Defense and on January 29, this nomination was confirmed by the U.S. Senate. On January 30, 1969, Secretary of Defense Melvin R. Laird administered the oath of office.

At the time of his nomination, Mr. Froehlke was chairman of the board of Sentry Indemnity Co., president of Sentry Life Insurance Co. of New York, executive vice president of Sentry Life Insurance Co. of Wisconsin, and a vice president of all the other companies in the Sentry Insurance group. He was a member of the board of directors of the various companies comprising Sentry Insurance.

Mr. Froehlke is married to the former Nancy J. Barnes of Marshfield, Wis. They have four children—Bruce (20), Jane (17), Ann (14), and Scott (12). They are currently residing at 5440 Jordan Road, Washington, D.C.

Mr. SIKES. Now, Mr. Secretary, we will be pleased to have your statement.

GENERAL STATEMENT

Mr. FROEHLKE. Thank you, Mr. Chairman and members of the committee.

Mr. SIKES. Your assistants look like a very intelligent and well-informed group.

Mr. Secretary, may I say I think you are on sound ground on bringing these well-informed individuals with you. I earnestly recommend that you not hesitate to take advantage of their knowledge. You cannot be expected to have all the answers to all the questions that are going to arise about your responsibilities. So never hesitate to use the backup witnesses.

Mr. FROEHLKE. Thank you, Mr. Chairman. I realize that. I am happy you do, too.

Mr. Chairman and members of the committee, I am Robert F. Froehlke, Assistant Secretary of Defense for Administration. It is a pleasure to make my first appearance before your committee. Hopefully this is only the first of many mutually beneficial discussions we will have. I want you to know that I realize a good working relationship between this committee and the Department of Defense is a prerequisite to the fulfillment of our mutual national security responsibilities. It is my intent, therefore, to give careful and prompt consideration to your views on the several items within the "Operation and Maintenance, Defense Agencies" appropriation we are discussing

here today. I invite any comments or questions that you might have. I am particularly anxious to receive any suggestions which might make my future appearances more useful.

The "Operation and Maintenance, Defense Agencies" appropriation provides operation and maintenance funds for several DOD components. They include the Office of the Secretary of Defense, the organization of the Joint Chiefs of Staff, interdepartmental activities, formal education programs for military personnel, the Armed Forces information program, Defense Communications Agency, Defense Contract Audit Agency, Defense Supply Agency, and certain classified programs. My presentation will cover the budget requirements of the Office of the Secretary of Defense, the organization of the Joint Chiefs of Staff, interdepartmental activities, the Office of Information for the Armed Forces, and the U.S. Armed Forces Institute at Madison, Wis. Presentations have been made separately by other DOD witnesses covering the programs and activities of their respective organizations which are financed under this appropriation.

In an attempt to put our estimated fiscal year 1970 requirements in perspective, I will compare the revised estimates for fiscal year 1969 to the estimates presented to you a year ago and then present the fiscal year 1970 requirements.

Pay, allowances, and permanent change of station costs for military personnel assigned to the activities under discussion are not included in these estimates. These costs are contained in the military personnel appropriation estimates of the military departments. However, all other support costs for military personnel assigned to these activities, such as temporary duty travel, supplies, and office equipment, are included.

OFFICE OF THE SECRETARY OF DEFENSE

In April of last year an OSD budget request for \$40,266,000 for fiscal year 1969 was presented. In accordance with the provisions of the Revenue and Expenditure Control Act of 1968 these requirements were reduced by \$1,210,000. However, during fiscal year 1969 certain audit and foreign disclosure policy functions were transferred from the military departments to the Office of the Secretary of Defense. These transfers of personnel, equipment, records, and funds increased our requirements by \$1,070,000, with a resultant decrease in the military service budget requirements. The fiscal year 1969 cost of the civilian pay raise that went into effect in July 1968 amounted to \$1,704,000 and a transfer of \$6,000 to the General Services Administration for rental of space brings the revised financial requirements for fiscal year 1969 to a total of \$41,824,000.

For fiscal year 1970 our estimated requirements for the Office of the Secretary of Defense total \$41,185,000. This is a net reduction of \$639,000 below the fiscal year 1969 estimate. However, this reduction does not provide a true picture of our rather extensive efforts to reduce expenditures.

Let me elaborate. Many of the savings which we have been able to make are offset by unavoidable increases. For example, the fiscal year 1970 savings in civilian personnel compensation and benefits resulting from reduced employment is approximately \$567,000; however, over \$450,000 of these savings are offset by the cost of annualizing

the fiscal year 1969 civilian pay raise and by increases attributable to within grade salary advances. We are aware of this committee's concern relative to management contracts and in consonance with that concern have reduced fiscal year 1970 requirements by \$1,503,000. These decreases, plus reductions amounting to \$247,000 in the central services account (building maintenance, supplies, equipment, and so forth) are offset by a decision to fund the operation of the U.S. mission to NATO from our budget activity rather than from the military assistance program appropriation.

As a matter of background, in fiscal year 1967 and prior years, the functions of the U.S. NATO military committee and other NATO activities, including the U.S. mission to NATO, were budgeted under the MAP appropriations. Those budgetary functions, other than the U.S. mission to NATO, were transferred to the Department of the Army in fiscal year 1968. In fiscal years 1968 and 1969 the budget for the operation of the U.S. mission to NATO was carried under the MAP appropriation. We examined the organizational responsibilities of this organization and found that its primary function was to advise the U.S. Ambassador to NATO regarding Department of Defense positions, policies, plans, and programs concerning the North Atlantic Treaty Organization. The U.S. mission to NATO does not provide support for NATO military headquarters or agencies. Therefore, we are treating it as a part of Secretary of Defense activities and are including the funding requirements in the "Operation and Maintenance, Defense Agencies" appropriation. The fiscal year 1970 estimates for this activity are \$1,157,000. The fiscal year 1970 estimates included in the MAP appropriation are, of course, that much lower than if the U.S. mission to NATO were included.

For your convenience a detailed summary of the Office of the Secretary of Defense financial requirements—attachment 1, and a summary of personnel requirements—attachment 2 are provided.

ORGANIZATION OF THE JOINT CHIEFS OF STAFF

Next, I invite your attention to the budget requirements of the organization of the Joint Chiefs of Staff. You will find attached to this statement two tabulations pertaining to OJCS; a summary of financial requirements (attachment 3) and a summary of personnel requirements (attachment 4).

The original fiscal year 1969 budget estimate for OJCS was \$7,198,000. Included in that estimate was \$400,000 for the operation of the Joint Continental Defense Systems Integration Planning Staff that has since been transferred to the Department of the Air Force as planned and indicated in testimony before this committee last year. The impact of the Revenue and Expenditure Control Act of 1968 reduced the fiscal year 1969 requirements by \$209,000; however, the civilian pay increase effective in July 1968 added \$208,000, bringing the revised estimate for fiscal year 1969 to \$6,797,000.

The fiscal year 1970 budget request for the OJCS is \$6,833,000 or \$36,000 higher than in the current fiscal year. This net increase provides \$70,000 for normal within grade salary increases, \$8,000 to annualize the fiscal year 1969 civilian pay raise, and \$87,000 to fund the office of the Special Assistant for Military Assistance Affairs, an

activity previously budgeted under the MAP appropriation. The transfer of funding for the SAMAA to the O. & M. appropriation will decrease the administrative burden of preparing separate budgets, reports, and so forth for such a small activity (six civilians and 10 military officers). These budgetary increases are partially offset by reductions primarily attributable to 16 man-years reduction in civilian personnel employment forecast for fiscal year 1970, resulting in an overall net increase of the \$36,000 mentioned earlier.

INTERDEPARTMENTAL ACTIVITIES

In the area of interdepartmental activities there are no funding requirements in fiscal year 1970. The fiscal year 1969 estimate of \$61,000 included \$25,000 for the computer program for the Office of the Special Representative for Trade Negotiations and \$36,000 reserved for contingencies. There are no plans at this time for the use of the \$36,000 reserve and it will probably revert to the Treasury in the form of an unobligated balance in fiscal year 1969.

EDUCATION PROGRAMS

In the area of education programs the original fiscal year 1969 budget estimate for the U.S. Armed Forces Institute was \$5,936,000. The impact of the Revenue and Expenditure Control Act of 1968 was to reduce this estimate by \$199,000. However, \$65,000 for the civilian pay act increase, and \$35,000 for a one-time equipment cost relative to the transfer of USAFI, Europe, to the United States, brings the revised estimate for fiscal year 1969 to \$5,837,000.

The U.S. Armed Forces Institute, for fiscal year 1970, will require \$6,522,000 in direct obligation authority; a \$685,000 increase over fiscal year 1969.

The functional transfer of USAFI, Europe, to USAFI, Madison, in late fiscal year 1969 accounts for \$251,000 of the increase. In previous years, the operating funds for USAFI, Europe, were contained in the Department of the Army budget. We estimate that an overall DOD savings of \$60,000 per year will be realized in operational costs as a result of the transfer. In addition to these savings, the gold outflow will be reduced by an estimated \$224,000 each year. The remainder of the \$685,000 increase requested is necessary to meet increased costs of educational materials and services required by USAFI to meet current workload demands. The increased budget for educational materials in fiscal year 1970 results primarily from the need to rebuild the inventory which has diminished in fiscal year 1969 due to increased demands for courses and limited availability of replacement funds.

The reduction in the funds allocated for equipment in fiscal year 1970 results from the absorption of abnormally heavy one-time costs in fiscal year 1969 because of the purchase of office equipment to accommodate the transfer of USAFI, Europe, operations to USAFI, Madison.

For your convenience, these changes are summarized in attachment 5.

The USAFI program produced revenue of \$570,000 in student correspondence enrollment fees during the past year. The fees are deposited in general fund receipts and, therefore, are not used as a direct offset to our budget request.

OFFICE OF INFORMATION FOR THE ARMED FORCES

The last area that I will discuss is the Office of Information for the Armed Forces. This office provides motion pictures and publications for the command and internal information programs of the Armed Forces. It also provides radio and television programming for Armed Forces radio and television stations overseas and news, sports, and current events for service personnel worldwide. Last year \$5,284,000 was requested for fiscal year 1969 for the Office of Information for the Armed Forces. Application of the Revenue and Expenditure Control Act of 1968 reduced this amount by \$158,000. Increases for unbudgeted items of \$96,000 to cover the civilian pay act increase and \$221,000 for the Thailand television operation brings the revised fiscal year 1969 total to \$5,443,000.

The fiscal year 1970 estimate for this office is \$5,812,000, an increase of \$369,000 over the fiscal year 1969 budget. The major portion of this increase covers costs for stereophonic record pressing contracts, expansion of television service in Thailand, and service requests for an increase in the number of prints of publication and motion picture materials.

For your convenience, these changes are summarized in attachment 6.

This completes my portion of the "Operation and maintenance, defense agencies" appropriation statement. Thank you again for the opportunity to appear before this committee.

REDUCTION IN JOHNSON BUDGET

Mr. SIKES. Thank you, Mr. Secretary. What are the significant differences between the revised 1970 budget and the earlier Johnson budget?

Mr. FROEHLKE. Mr. Chairman, I would like to ask my colleagues to answer your question about the Johnson budget. I do not have it at my fingertips. I am sure they do. Yes, they do. There is a \$155,000 reduction, including 14 year-end strength and 9 man-years. That is the main reduction we made in the Johnson budget.

One further request, Mr. Chairman, Mr. Capen, from the Office of the Assistant Secretary of Defense (Public Affairs), has a series of meetings tomorrow which force him to leave town. I would urgently request if it is permissible that questions on public affairs be addressed, if possible, today so he will be able to assist in the answers.

Mr. SIKES. The committee has been apprised of his problem and we will be glad to adjust our questions accordingly.

Mr. FROEHLKE. Thank you.

Mr. SIKES. Before I begin the questions, I am sure that you realize the very great importance of the radio and television programming for

U.S. forces overseas. It is their best and frequently their only contact with what is happening at home, and it is certainly followed closely and very greatly appreciated by the troops.

Mr. FROEHLKE. I concur with that statement, sir.

SECRETARY OF DEFENSE ACTIVITIES

Mr. SIKES. First, I want to consider the request for Secretary of Defense activities and insert in the record at this point various supporting justifications.

(The justifications follow:)

SECRETARY OF DEFENSE ACTIVITIES, SUMMARY OF FINANCIAL REQUIREMENTS

[In thousands of dollars]

Type of expense	Fiscal year 1968 actual	Fiscal year 1969			Fiscal year 1970 budget estimate
		President's budget	Adjust- ments	Revised estimate	
Personnel compensation.....	25,954	27,878	+1,659	29,537	29,996
Personnel benefits.....	1,850	2,010	+144	2,154	2,396
Travel and transportation of persons.....	1,298	2,295	-450	1,845	1,969
Transportation of things.....	92	100	+5	105	123
Rent, communications, and utilities.....	707	923	-74	849	855
Printing and reproduction.....	1,006	925	+175	1,100	1,200
Other services.....	2,519	5,625	+99	5,724	4,221
Equipment maintenance and repairs.....	(107)	(120)		(120)	(127)
Building maintenance and repairs.....	(347)	(400)	(-15)	(385)	(150)
Official representation.....	(27)	(42)		(42)	(42)
Management contracts.....	(1,208)	(3,012)	(-95)	(2,917)	(1,414)
Other.....	(830)	(2,051)	(+209)	(2,260)	(2,488)
Supplies and materials.....	184	232		232	205
Equipment purchases.....	175	278		278	220
Total (direct obligations).....	33,785	40,266	1,558	41,824	41,185

OFFICE OF THE SECRETARY OF DEFENSE, SUMMARY OF PERSONNEL REQUIREMENTS

	Fiscal year 1968 actual	Fiscal year 1969			Fiscal year 1970 budget estimate
		President's budget	Adjust- ments	Revised estimate	
YEAREND STRENGTH					
Civilian:					
Full time.....	1,801	1,978	-159	1,819	1,782
USNATO staff.....	1 (48)	1 (48)	1 (-5)	1 (43)	39
OASD (comptroller) audit staff.....	1 (6)	1 (6)		1 (6)	6
Temporary employees.....	58	79	-20	59	59
When actually employed.....	54	115	-61	54	49
Subtotal, civilian.....	1,913	2,172	-240	1,932	1,935
Military	660	667	+53	720	720
USNATO staff.....	1 (31)	1 (32)	1 (-1)	1 (31)	31
Total, yearend.....	2,573	2,839	-187	2,652	2,686
AVERAGE EMPLOYMENT					
Civilian:					
Full time.....	1,800	1,860	-16	1,844	1,784
USNATO staff.....	1 (48)	1 (47)	1 (-1)	1 (46)	40
OASD (comptroller) audit staff.....	1 (6)	1 (6)		1 (6)	6
Temporary employees.....	16	20	-5	15	15
When actually employed.....	32	55	-17	38	37
Subtotal, civilian.....	1,848	1,935	-38	1,897	1,882
Military	655	667	+53	720	720
USNATO staff.....	1 (28)	1 (32)	1 (-1)	1 (31)	31
Total, average employment.....	2,503	2,602	+15	2,617	2,633

1 Nonadd items.

REDUCTIONS RESULTING FROM REVENUE AND EXPENDITURE CONTROL ACT

Mr. SIKES. Mr. Secretary, you mention on page 3 of your statement that the Secretary of Defense activities were reduced \$1,210,000 as a result of the Revenue and Expenditure Control Act of 1968, the Congress reduced the overall request for Defense agencies for fiscal year 1969 by \$40.8 million. Was the reduction applied to the Secretary of Defense activities proportionate to that applied to the other activities supported by the Defense agencies appropriation?

Mr. FROEHLKE. I will have to ask Mr. Fisher to answer that question.

Mr. FISHER. The decision on the reduction made by the committee was made by the OASD (Comptroller). I believe the way the reduction was distributed between the Office of Secretary of Defense and the Defense agencies funded from this appropriation was equitable. I do not have the specific figures in front of me.

Mr. SIKES. I suggest you research that for the record and provide a more exact answer.

(The information follows:)

As a result of the congressional reduction of \$40.8 million (3.8 percent) each Defense agency, the OSD and the OJCS were initially reduced by a minimum of 3 percent. The balance of the reduction was made up of savings resulting from specific program adjustments, repricing, and reevaluation of workload, primarily in DSA and the classified activities.

CHANGES IN THE OSD ORGANIZATION

Mr. SIKES. The request for the Secretary of Defense activities for fiscal year 1970 is \$41,215,000. Do you plan any organizational changes which will affect the amount of this request?

Mr. FROEHLKE. That is an impossible question to answer specifically now in light of a recent development. As I think you are aware, Secretary Laird has announced that he is going to appoint a blue-ribbon panel to look into the organization of the Department of Defense. We are in the process of naming the Chairman and selecting the Panel members. I anticipate, because there has not been an outside examination in 11 years, that this Panel will, in the course of its studies, come up with certain recommendations which hopefully will reduce the cost of doing business in the DOD.

Mr. SIKES. There may not have been a reorganization, but there have been continuing shifts. As a matter of fact, it is a way of life. You mention a number of them in your statement. How much confusion and loss of efficiency is occasioned by the fact that there are these frequent shifts of agencies and activities between departments?

Mr. FROEHLKE. I presume there necessarily is confusion when you have change. I believe the few that have occurred thus far since the new administration will result in more efficiency rather than less. That is the reason for instituting the few changes that we have made thus far.

You are correct, confusion necessarily does go along with change. We think we can minimize it.

Mr. SIKES. How do you determine that a shift of this nature is necessary? Why is there an advantage of having activity X in one

department rather than another? What are the basis on which you rest the decision to make these shifts?

Mr. FROEHLKE. Mr. Chairman, I would say in two areas basically. No. 1, looking at history, looking at the theory of management and organization and then trying to apply the actual facts to the historical pattern and to the theory of organization. Then, and maybe more important, I think it is the judgment of the leaders. That is why I think Secretary Laird and myself and the other leaders in the Department of Defense have to stand responsible for these changes. Applying theory, applying historical tradition, we use our best judgment. I think judgment is the most important of the three.

Mr. SIKES. Is there a measure of efficiency which you try to apply in order to determine the validity or wisdom of a shift?

Mr. FROEHLKE. I suppose one of the best measures, Mr. Chairman, is expense. Of course, a complicating factor there is the inflationary factor. Yes, I would say the best rule of thumb must be expense.

Mr. SIKES. Have you analyzed the projected changes which are now before you to determine areas in which savings can be realized as a result.

Mr. FROEHLKE. There are certain relatively minor areas which every manager should be looking at all the time. However, the major areas for change now will undoubtedly be reserved for the blue-ribbon panel to look at and come in with recommendations.

BLUE-RIBBON DEFENSE PANEL

Mr. ANDREWS. If the chairman would yield, Mr. Secretary, could you tell us a little something about the blue-ribbon panel?

Mr. FROEHLKE. Yes, sir.

Mr. ANDREWS. We have heard about another blue-ribbon panel. I want to know if it is the same one. How many blue-ribbon panels do you have planned?

Mr. FROEHLKE. Only one in the Department of Defense.

Mr. ANDREWS. Maybe it is the same one we heard about. What will be the object of the blue-ribbon panel?

Mr. FROEHLKE. The object will have three general categories. First, and most important, it will look into the organization and management of the DOD. Secondly, it will look at our weapons system to determine whether we are keeping abreast of developments in the weapons area and thereby fulfilling our mission. Then, lastly, it will study our procurement policies and practices, particularly as they relate to costs, time, and quality.

Mr. ANDREWS. How many people will serve on the panel and by whom will they be appointed?

Mr. FROEHLKE. That specific answer has not been determined. We will have between 12 and 16 people on the panel.

Mr. ANDREWS. Appointed by whom?

Mr. FROEHLKE. Appointed by the Secretary of Defense. No salary, incidentally.

Mr. ANDREWS. Will they be retired military people?

Mr. FROEHLKE. Inasmuch as we have not appointed them, I cannot definitely say.

Mr. ANDREWS You do not know what the talk is, what type of people will be appointed?

Mr. FROEHLKE. I have a list of some of the names that are being discussed. I am trying to recall. I believe as of this date we have no retired military people.

Mr. ANDREWS We hear a lot of talk about the so-called military-industrial complex, whatever that means. Will these appointees on the blue-ribbon panel come from that group, or do you know?

Mr. FROEHLKE. I do not know. I would hope some would come from the military-industrial complex, because we want some people on this panel that are knowledgeable in the area. We want some people who bring fresh new ideas. I would hope there would be a good cross section on the panel.

Mr. ANDREWS. Thank you, Mr. Chairman.

Mr. MINSHALL. When do you plan to announce this blue-ribbon panel? When will it be formulated and finalized?

Mr. FROEHLKE. I would hope within 2 to 3 weeks. We have not as yet selected—I should not say we, I should say the Secretary has not selected—the panel members. Therefore, we do not know how difficult it will be to get people to serve. It is a terrible imposition on these people. We anticipate it will be roughly a 1-year study period. We anticipate it will take at least 1 day a week. We are asking these people to serve at no compensation. So I can understand why some individuals with responsible jobs would just unfortunately decline. I am hopeful most of them will feel the responsibility to perform a good job for their Government.

If we can get the people we want within 2 to 3 weeks the announcement will be out, sir.

Mr. ADDABBO. When you say no compensation, no per diem or travel expenses.

Mr. FROEHLKE. We will reimburse for travel expenses.

Mr. SIKES. Is this new or has this been studied repeatedly over recent years?

Mr. FROEHLKE. You mean the blue ribbon panel's activity, sir?

Mr. SIKES. The general area with which the blue ribbon panel will treat.

Mr. FROEHLKE. I obviously do not know, not having been here, but I would assume it is constantly being studied, since a good manager should always be aware of what his organization is and how well it is meeting its mission. The significance of outsiders coming in, hopefully, with no ax to grind other than to having a more efficient, more economical operation, is that they will be able to take a new look at it and they will have the time.

I have observed in the short while I have been here that it is one ingredient that seems to be lacking, time, to make analyses, to look at it from the proper perspective.

Mr. ANDREWS. You do not have enough time?

Mr. FROEHLKE. I could use a little more time. My observation is that this applies to everyone.

Mr. ANDREWS. Certainly it applies to Congress.

PERSONNEL COMPENSATION AND BENEFITS

Mr. SIKES. As in the past year, the greatest percentage of the request for Secretary of Defense activities is for personnel compensation and benefits.

We note an increase for fiscal year 1970 of \$701,000. Is all of this due to additional pay costs or due to automatic in-grade promotions?

Mr. FROEHLKE. Yes. I should add that we also have this transfer of the NATO people which were funded previously in the MAP program.

Mr. SIKES. The committee has been provided an analysis of the funds requested for "Other personnel compensation" for the Defense agencies. This analysis indicates that \$942,000 in overtime and holiday pay will be required by Secretary of Defense activities. Why would there be this large amount for overtime and holiday pay?

Mr. FROEHLKE. Sometimes you have the choice of being oversupplied with personnel to take care of the emergency periods, or to run a little bit tighter ship and when the pressure gets on to let people work overtime.

Mr. SIKES. This is a rather large sum. Does that indicate that you should have more full-time personnel and you are depending on the costly overtime and holiday pay?

Mr. FROEHLKE. It is my feeling that it is better to run a tighter ship. There is nothing worse again, in my opinion, than to have a lot of people sitting around waiting for the emergency.

Mr. SIKES. I agree with that. It is difficult to strike the exact happy medium. I would like to have a comparison for the record of overtime and holiday pay for the last 3 fiscal years.

Mr. FROEHLKE. We will supply it sir.

(The information follows:)

Comparative overtime and holiday pay costs follow:

Fiscal year 1968	-----	\$825, 000
Fiscal year 1969	-----	930, 000
Fiscal year 1970	-----	942, 000

NOTE.—The \$12,000 increase from fiscal year 1969 to fiscal year 1970 is entirely attributable to the transfer of USNATO.

Mr. SIKES. This analysis also indicates that \$153,000 of other personnel compensation is for overseas allowances. How many civilian personnel employed under the Secretary of Defense activity are permanently assigned overseas?

Mr. FROEHLKE. We have the NATO people, and for others I will have to look to my colleagues.

Mr. SIKES. Provide the answer for the record.

(The information follows:)

The fiscal year 1970 budget request includes the following Office of the Secretary of Defense civilian personnel permanently assigned overseas.

	<i>Year end</i>
USNATO	39
OASD (Comptroller)	27

SUMMER YOUTH OPPORTUNITY PROGRAM

Mr. SIKES. How did you manage to reduce civilian personnel cost by \$567,000 with only a reduction in average strength of 15 civilian employees?

Mr. FROEHLKE. There are a number of answers to that, I will comment, and then I will ask my associates to amplify. One, even though we only had a net reduction of 15, if you lose people in the top grades and add in the lower grades you have a substantial savings in dollars. We also have vacancies.

The organization calls for people but we have not filled the vacancies. It would be my belief that we have the combination of the two.

Mr. COOK. I would say also we had to include NATO, because it was transferred from the MAP funding to O. & M. funding.

That is why the reduction shows up as only 15 man-years.

Mr. SIKES. Is there a connection between the requiring of employees under the summer youth opportunity program and the large amount of overtime and holiday pay which is being programmed?

Mr. FROEHLKE. I would think we save on overtime by the summer youth program. Summer is when most of our employees are taking vacations. If we did not have the summer program I am afraid overtime would get substantially larger. That is one of the purposes of the program.

Mr. SIKES. Mr. Secretary, what the committee is interested in finding out is whether or not the overtime pay is actually higher than it normally would be or is the cost of the summer youth opportunity program included therein for some reason or other.

Mr. FROEHLKE. I believe it is not. They are separate.

Mr. FISHER. By direction of the Bureau of the Budget we are not permitted to budget for any summer youth opportunity program.

Mr. SIKES. That is true, but you are going to employ some under the youth opportunity program this summer.

Mr. FISHER. That is true.

Mr. SIKES. Where would that cost be?

Mr. FISHER. It would be in the regular personnel compensation. We would have to absorb it. It is a minor cost when you get down to cases because these people are usually at the minimum wage of a dollar and 40 cents per hour. There are a limited number of them available. They have to be certified by the employment service that they are in this category.

Mr. LIPSCOMB. What do you mean by minor cost? \$12 million?

Mr. FISHER. No, I am talking about a maximum of \$25,000 in a \$40 million budget.

Mr. LIPSCOMB. In your summer youth program?

Mr. FISHER. It cannot be much more than that.

Mr. FROEHLKE. The total is around \$250 million, as I recall.

Mr. FISHER. This is just the Office of Secretary of Defense I am talking about.

Mr. COOKE. We have approximately, in the sections that the Secretary is defending, 20 summer aid people. We also have summer

clerical help employment, which is to be distinguished from summer aid—about 59 in the Office of the Secretary of Defense, and about 65 overall including the OJCS.

Mr. LIPSCOMB. You are just talking about the summer employment program in Defense agencies.

Mr. COOKE. Yes, sir.

Mr. LIPSCOMB. Throughout the Department of Defense it runs around \$12 or \$15 million. You just have an insignificant part of it.

Mr. FISHER. That is true.

Mr. COOKE. That is true, sir.

SUBSTITUTION OF MILITARY FOR CIVILIAN PERSONNEL

Mr. ANDREWS. The schedule of your yearend personnel strength, appearing in the justification book, indicates that while the civilian employee strength has decreased below the original estimates for fiscal 1968 and 1969 and will increase by only three in fiscal year 1970, the total employee strength of the Office of the Secretary of Defense continues to increase.

This is because of the increase in the number of military personnel being assigned to the various operations within the Office. Would this not indicate, in effect, that you have established a military substitution program for the civilian employee positions being vacated?

Mr. FROEHLKE. That certainly is not our intent, sir.

Mr. ANDREWS. Do you want to comment on it?

Mr. FROEHLKE. We recognize that we are not accomplishing our aim if we merely substitute a military man for a civilian. As a matter of fact, as you know, there has been a program, I believe, for a number of months or years just reversing that. So in my opinion it would be a subterfuge if we would go along the lines you suggest.

Mr. ANDREWS. Will you explain why the Office of the Secretary of Defense has been increasing the number of military personnel assigned?

Mr. FROEHLKE. I think we increased from 720 to 751 and that is all NATO. We added 31 military in the Office of Secretary of Defense. They are entirely in the NATO office we took over from the military assistance program.

Mr. ANDREWS. What plans have you for increasing civilian employee strength in the event that section 201 of the Revenue and Expenditure Control Act of 1968 is repealed by the Congress?

Mr. FROEHLKE. We have no plans.

However, the one good aspect of that would be if something of an emergency nature were to arise we would be in a position to move. But we have no plans to add.

TRANSFER OF NATO POSITION TO OSD

Mr. SIKES. During fiscal 1970 a large increase in both civilian and military personnel strength is to take place in the Office of the Special Staff Assistant. The yearend strength for this office increases from a total of 21 in 1969 to 92 in 1970. This is principally due to the assignment of the Office of the Defense Advisor, U.S. Mission to NATO, to Secretary of Defense Activities. Why is this transfer taking place?

Mr. FROEHLKE. It appeared, Mr. Chairman, from an organizational

standpoint that it made more sense to assign the adviser to the Ambassador to the Office of Secretary of Defense. In effect, he is to represent at NATO Headquarters in Belgium the Secretary of Defense and he advises the Ambassador on the plans and programs of the Secretary of Defense. In turn he keeps communication channels open with the Secretary of Defense to make him aware of what is happening with our NATO allies. It made more organizational sense.

Mr. SIKES. I do not think we can quarrel with that reasoning. How many employees are involved?

Mr. FROEHLKE. There are roughly 31 military, 39 civilians at year-end. I should not say roughly, exactly.

Mr. SIKES. For the record, how many employees were assigned to the Office of the Defense Adviser during fiscal 1968 and 1969?

Mr. FROEHLKE. May I supply that for the record?
(The information follows:)

U.S. NATO YEAREND EMPLOYMENT

	Actual, fiscal year 1968	Estimated, fiscal year 1969
Civilian.....	48	43
Military.....	31	31
Total.....	79	74

PUBLIC AFFAIRS

Mr. SIKES. Are there any organization changes being planned within the Office of the Secretary of Defense for Public Affairs?

Mr. FROEHLKE. I think inasmuch as Mr. Capen is here, I will turn to him and have him answer these questions.

Mr. SIKES. Very well.

Mr. CAPEN. Mr. Chairman, I first of all would like to thank you for adjusting your schedule to permit me to be available today. We are spending the next 2 days meeting with the families of U.S. servicemen whom we list as prisoners or missing in action and these are an important series of meetings to the families involved. We were reluctant to reschedule these meetings since they were arranged some weeks ago.

U.S. SERVICEMEN HELD AS PRISONERS OF WAR

Mr. SIKES. It is a most important assignment. Will you tell us something of the things that you are doing and tell us something of this overall very sad picture?

Mr. CAPEN. Mr. Chairman, as part of our informational efforts in the Defense Department it was Secretary Laird's belief that it was time for the DOD to express its deep concern as to the status of the more than 1,325 U.S. servicemen whom the United States lists as either prisoners or missing in action. The tragedy of all of this is that there are hundreds of families who have lived up to 5 years without knowing whether their husbands or sons are even alive. It is our hope that not only the concern of the United States but the concern of other nations will encourage North Vietnam to respect the provisions of the Geneva

Convention which require that those countries holding prisoners will make available lists of those men who are held prisoners.

Mr. SIKES. They are signators with reservations.

Mr. CAPEN. That is correct.

Mr. SIKES. What are the reservations? They do what they want to.

Mr. CAPEN. As signators, the North Vietnamese are required to abide by the Geneva Convention provisions of 1949.

Mr. SIKES. But they are not abiding by them and you have a very heart-rending situation. As I understand it, they have given no response to the request for humane treatment and for information on the prisoners themselves; is that correct?

Mr. CAPEN. That is correct.

Mr. SIKES. You are in a very difficult position in attempting to learn anything. What are you trying to do—just arouse sentiment through international channels to help to bring some pressure to bear on Communist forces generally for correction of this situation?

Mr. CAPEN. I would say that our objectives are twofold. First to urge compliance with our basic humanitarian request for proper treatment of all U.S. servicemen held prisoners; second, from the standpoint of our country, to assure the hundreds of families that their servicemen will not be forgotten.

Mr. SIKES. Are we getting any cooperation from other Communist nations? Russia, for example?

Mr. CAPEN. At this point I am not aware of specific cooperation on this subject.

Mr. SIKES. Has it been requested?

Mr. CAPEN. That is the sort of question I think the State Department would be in a better position to answer than I would be, sir.

Mr. SIKES. It is my understanding that this has been taken largely out of the hands of the State Department since they were making no progress and the Pentagon has been told to go ahead and see what you can do; isn't that the situation?

Mr. CAPEN. I think our efforts have been to work closely with the State Department. We have not infringed in any way on their areas of responsibility. We all feel a great responsibility to these men.

We feel a great responsibility to the families involved. There are families in your part of the country, I am sure, who have lived under this uncertainty for many months. We have undertaken an effort to visit several metropolitan areas where there are large numbers of families, to meet with them privately, to discuss what we are attempting to do. A State Department representative attends these meetings with us.

MEETINGS WITH FAMILIES OF SERVICEMEN

Mr. SIKES. What do you tell the families? What are you able to say to them that is helpful and makes your effort worthwhile?

Mr. CAPEN. Communications in an area so sensitive and difficult as this are most important. Our impression is that, by reviewing what we are attempting to do; by reviewing our new policy of open expression of concern on this subject; and by summarizing what little information has come to us, we find that the families are relieved to know that the U.S. Government is going to such efforts on behalf of their family members. For the most part, we found this to be very constructive to these hundreds of families.

Mr. SIKES. What happens to the family whose member is in Communist hands? Do they continue to get the pay and allowances?

Mr. CAPEN. Yes, sir; they do.

Mr. SIKES. Do they get the actual pay of the soldier or is that held in abeyance?

Mr. CAPEN. I can supply additional details for the record on that, but for the most part they would receive allotments of funds that the serviceman would have designated be sent to the family. Any amounts that are continued on the pay record of the prisoner or missing in action personnel can be deposited in savings accounts up to \$10,000 bearing 10 percent interest. There are any number of servicemen who now have that amount on their pay records and are receiving the 10-percent interest benefits. The Service Secretary may approve the deposit of unallocated pay in special savings accounts. Also, he may increase or decrease the percentage of unallotted pay which is paid to the dependents.

Mr. SIKES. How are the meetings actually arranged? Do you have meetings at central points at which a number of families gather?

Mr. CAPEN. The coordination with the families involved is a service responsibility and they have done a fine job of communicating on a regular basis with the families. The series of meetings we have attended have been arranged by the services. Of more than 1,340 families, more than two-thirds are Air Force. The Air Force is arranging the current series of meetings in 12 metropolitan areas where there are approximately 35 or more families at each location.

Mr. SIKES. Do you provide transportation for those families who are attending the meetings?

Mr. CAPEN. The wives and children of these servicemen are able to travel on a space available basis.

Mr. SIKES. Who pays the cost while they are attending the meetings such as the hotels and meals?

Mr. CAPEN. Those costs are not paid for by the service. However, the services cooperate fully and we attempt to arrange the schedules in such a way that they can attend the meeting and return home in the same day.

Mr. SIKES. What are you telling them at this time that would be helpful to them?

Mr. CAPEN. I think first of all I have to recognize—

Mr. SIKES. I applaud what you are doing. I think this is a humanitarian gesture—at least a gesture—that is well worthwhile. But just to be wholly analytical about it, what can you tell them that is going to be helpful to them?

Mr. CAPEN. I think the first thing we have to recognize is that because we are not able to tell them their husbands or fathers or sons are on the way home, anything we say will be a disappointment to a degree. However, by pointing out what we are attempting to do, and by explaining to them what the arrangements would be when their family members are returned, we reassure them of our continuing

concern and our continuing efforts in their behalf. This we have found to be most meaningful to these families.

Mr. SIKES. Is one such meeting all that is held with a family of a prisoner of war?

Mr. CAPEN. No. Each family has a casualty assistance officer assigned, and that casualty assistance officer communicates on a personal basis or through the mail on a regular schedule. However, this effort at the Secretary of Defense level and the State Department level is a new effort, and whether it will be continuing I think would depend on the developments in the weeks and months ahead.

LACK OF INFORMATION ON PRISONERS

Mr. ANDREWS. What is the thinking in the Defense Department in the area concerned about the reason why the North Vietnamese have been so uncooperative in the question of prisoner exchange and even information exchange? What is your thinking as to what is behind it?

Mr. CAPEN. Our greatest problem, of course, is lack of information. It seems to us they believe there are certain bargaining or propaganda advantages to retaining these men. It seems to us they have used these men for that purpose, particularly propaganda. A great deal of the information we have on the few men we have confirmed as prisoners, or whom we believe are prisoners, has come in the form of propaganda films or photos which for the most part, the North Vietnamese have sold to news media around the world for profit. Their propaganda also comes to us in the form of carefully selected interviews.

Mr. ANDREWS. I saw a picture of Adm. John McCain's son. What have you learned about that picture?

Mr. CAPEN. One of the areas we pointed out in our overall concern is that we have seen several photographs of the men injured at the time they were captured. We are concerned about what kind of treatment they are receiving. In our news briefing of May 19 we used several specific examples, one of which was Admiral McCain's son who broke two arms and a leg at the time he was captured. He was interviewed shortly after this and that picture was taken from the interview; it was broadcast in Western Europe.

Since the date of our press conference at the Pentagon, Radio Hanoi broadcast what they claimed was Admiral McCain's son's voice. This voice said, "I am in good health. I am being well treated."

Secretary Laird responded to that by saying, "While we welcome any information on our men, we believe that propaganda broadcasts are no substitute for impartial inspections."

Mr. ANDREWS. Did you check out that broadcast that was purported to be the broadcast of Admiral McCain's son?

Mr. CAPEN. We checked out the content of it; yes, sir.

Mr. ANDREWS. Has it been identified as his voice by people who know him?

Mr. CAPEN. I am not aware that it has positively been identified.

Mr. ANDREWS. You haven't answered the question that I asked. Namely, what is behind the attitude of the North Vietnamese?

Mr. CAPEN. I wish I had the answer to that, Congressman, but I am afraid I don't.

PRISONERS HELD BY UNITED STATES

Mr. ANDREWS. Have we given them information about captured North Vietnamese?

Mr. CAPEN. Yes, sir. Prisoners detained by U.S. troops—that would be North Vietnamese and Vietcong prisoners—are turned over to the South Vietnamese Government. They are held in prisoner of war facilities that are regularly inspected by the International Red Cross in accordance with the Geneva Convention and the list of those men in those facilities is turned over to the International Red Cross, who in turn makes the lists available to North Vietnam.

U.S. SERVICEMEN HELD PRISONER BY NORTH KOREA

Mr. ANDREWS. I now wish to ask you a question about the Korean war. Are any U.S. servicemen still held as prisoners by North Korea?

Mr. CAPEN. I don't have any information on that, but we can supply it for the record.

Mr. SIKES. There are some defectors who haven't come back. Most have come back. So far as we know, all prisoners of war have been released. There may be some of which we have no account.

Mr. ANDREWS. Put something in the record, whatever you can find about it.

(The information follows:)

There are no known U.S. servicemen still held as prisoners by North Korea. However, 389 American servicemen have not been accounted for since the end of the war in Korea. There is no current reliable evidence from any source to indicate that these American servicemen, who served in Korea during the period 1950-53, are still alive and are being held prisoners by the Communists. Under the provisions of the Missing Persons Act, a finding of presumptive death was made for each of the men.

POLITICAL PRISONERS IN SOUTH VIETNAM

Mr. ANDREWS. There has been a series of stories in the Washington papers recently about political prisoners in the Saigon jails and jails elsewhere in South Vietnam; people who are in prison solely because of expressions of disagreement they have made with reference to the South Vietnamese Government. Do you know anything about those prisoners?

Mr. CAPEN. No, sir. I might say that I am not an expert in that area by a long shot. When we are talking about the U.S. prisoner of war situation, as all of you realize, this is a sensitive public affairs question and that is why I have had to become knowledgeable on our men in North Vietnam.

Mr. ANDREWS. Have you read these stories in the paper?

Mr. CAPEN. Yes, I have.

Mr. ANDREWS. They were written by the dean of the University of Boston, or Boston College Law School. They don't read good. Political prisoners; people expressing dislike for the present administration in Saigon are put in jail and kept there. The estimate runs from 30,000 to 60,000 of those type prisoners down there.

It doesn't look like a democratic form of government to me. What kind of a war are we fighting there? What are we fighting for?

Mr. SIKES. I doubt that these witnesses are qualified to respond.

Mr. ANDREWS. I do not seek an answer; I am just expressing my opinion.

REPATRIATION OF RETURNED POW'S

Mr. RHODES. Mr. Capen, have you done any work with our few returned POW's in the way of reorientation in order to determine what they went through and whether they were properly conditioned to be prisoners of war before they went so we can possibly, by our own training, anticipate the difficulties a man might have if he is a POW?

Mr. CAPEN. Congressman Rhodes, we have a very thorough plan for the repatriation and return of our U.S. servicemen. These men are thoroughly debriefed, so that we can learn as much as possible about their life while they were there, what kinds of problems they ran into, any other information that would help us to learn about the status of other prisoners over there. This is all helpful in learning what kinds of training would be useful to other servicemen who may be exposed to this danger. It is also helpful from the standpoint of learning how best to reorient the men when they return.

As you know, however, there have only been six men returned by North Vietnam in the past year and a half. These six were all held for relatively short periods of time, ranging from 3 to 7½ months. They are not typical of the problem that we have because they were held for short periods of time. However, they were thoroughly debriefed I might say for your information one of the meetings that we will have coming up will be in Phoenix.

Mr. RHODES. There is one prisoner of war, I think, stationed at Luke Air Force Base at the present time.

Mr. CAPEN. That is correct.

CHANGES TO CODE OF CONDUCT

Mr. MINSHALL. Have you discussed at all any plans to change the usual format of just "Name, rank, and serial number" for a prisoner of war?

Mr. CAPEN. That, of course, is covered under the Code of Conduct which when it was originally adopted, was meant to be under continuing review. Any information we gain on our men when they return is certainly considered in the review of the Code of Conduct, but I don't feel qualified to speak on that particular subject.

RETURN OF MONEYS RECEIVED

Mr. ADDABBO. If at a later date it is determined that a soldier who is presumed a prisoner turns out to have been killed in action, will the family be required to pay back any allotments or moneys received?

Mr. CAPEN. I believe they will not be so required.

Mr. SIKES. I think you are right, but will you determine that definitely for the record?

Mr. CAPEN. We certainly will.

(The information follows:)

The family of a serviceman who has received allotments or other moneys while their serviceman has been declared missing in action is not required to repay any such funds received when the serviceman is determined to be deceased. Upon determination of death, the payment of the allotment and any other moneys is stopped and a lump sum settlement is made, along with other entitlements due upon the death of a serviceman. The date of determination of death is the key element, not the actual date of death.

SOUTH VIETNAMESE CAPTURED BY VIET CONG

Mr. SIKES. What happens when a South Vietnamese soldier is captured by the Vietcong? Is he simply told "About face" and that he is now a Vietcong soldier? That happens, doesn't it?

Mr. CAPEN. I don't believe I can answer that question adequately for you, Mr. Chairman, but we can supply that for the record if you would like.

Mr. SIKES. Tell us what you know about what happens to the South Vietnamese Forces if they should be captured.

(The information follows:)

They are usually held in migratory prisoner of war camps. It is possible, however, that some few might have become defectors.

Mr. ADDABBO. Do the American Forces then also pay the South Vietnamese families for those who are captured?

Mr. CAPEN. May we supply that for the record as well?

Mr. ADDABBO. Yes.

(The information follows:)

No. There is no payment to South Vietnamese families from American sources for South Vietnamese personnel who are captured.

ORGANIZATIONAL CHANGES

Mr. SIKES. Are there any organizational changes being planned within the Office of the Assistant Secretary of Defense for Public Affairs?

Mr. CAPEN. Yes, sir; there are.

Mr. SIKES. Outline those for the record.

(The information follows:)

There are three areas within OASD(PA) where organizational changes have been or are being implemented. These changes will result in the reduction of 11 billets in the OASD(PA). The Chicago area office is being abolished with action completed by July 31, 1969. Certain functions of the magazine and book branch of ASD(PA) are being transferred to the services along with seven billets associated with these functions. The Southeast Asia News Branch of the Directorate for Defense Information is being consolidated with the Office of the Special Assistant for Southeast Asia. This consolidation will result in the abolishment of three professional military billets in the OASD(PA).

Additional planning, which could result in the elimination of the Office of Media Accreditation and Tours, is underway. The functions performed by this office would either be abolished or consolidated within the Directorate of Community Relations. This may result in an overall reduction of up to four billets depending on which functions can be abolished.

COMMITTEE STUDY OF PUBLIC AFFAIRS

Mr. SIKES. The committee's surveys and investigations staff recently completed a study of public affairs, public relations, and public information activities of the Department of Defense. The report indicates that generally there is personnel overstaffing, nonproductivity, inefficiency, and various duplications in operations and functions.

The gist of my first question on public affairs was to find out whether or not any changes were planned before pointing out the general deficiencies disclosed by our surveys and investigations staff study. Would you like to comment on these general areas of deficiency before we go into the details of the report?

Mr. CAPEN. I have been in this position since January 20. Since that time I have attempted to undertake a review of the Office of the Assistant Secretary of Defense for Public Affairs—

Mr. SIKES. Do you agree with the committee's findings?

Mr. CAPEN. I have not seen the report, Mr. Chairman. I do know that prior to the time that I came to Washington that the staff spent considerable time in our office.

Mr. SIKES. Let me interrupt you for a moment. This report will certainly be made available to you.

Mr. CAPEN. We will be interested and I imagine there may be some areas that we already felt were inadequate from our standpoint. We have moved ahead to make some of these changes. The Deputy Secretary of Defense asked each of the OSD offices to make a thorough review, which we undertook. We in public affairs recommended changes resulting in a slightly over 10 percent reduction in our authorized strength. We have moved ahead with the approval of the Office of the Assistant Secretary for Administration and are this week carrying out reductions that will amount to a 5 percent reduction. We believe this will help us to carry out our principal responsibilities of informing the American people in as efficient a way as possible.

OFFICE OF DEFENSE INFORMATION

Mr. SIKES. The report points out that within the Office of the Assistant Secretary for Public Affairs there is a Director of Defense Information. At the time of the study there were 69 employees assigned to this particular operation. The principal function of these employees was the release of information to the public through the media of the press, magazines, books, radio, television, and motion pictures. The report points out that most of the information released by this office was obtained from the services in the first instance.

The investigative staff was advised by public affairs officials that if inquiries not of a national interest requiring approval of the Director of Information are referred to the military services for direct response, duplicate handling could be eliminated. Is there any need for the duplicate handling of this information and why can it not be eliminated?

Mr. CAPEN. Mr. Chairman, we have looked at the workloads of each of the directorates in public affairs and, of course, with the large degree of interest on the part of the media, we have a tremendous number of queries coming in to this directorate which is responsible for answering those queries. For example, there are more than 35,000 queries a year that come into this directorate. These queries very often require close coordination with other departments and agencies within the Department of Defense, with the State Department, and with the White House, where appropriate.

It is our general belief that a central office where newsmen can direct queries is beneficial. We then are able to provide coordination on an efficient basis. But, overall, we believe that the coordination and cooperation through one office, the Director of Defense Information, is a proper way to function.

Mr. SIKES. You don't feel that there is duplicate handling—you do feel this apparent duplicate handling cannot be eliminated?

Mr. CAPEN. I would hope that we could minimize that wherever possible and I can assure you that we are looking into this as fast as possible, recognizing that we do have a new team in this office.

DIRECTORATE FOR PLANS AND PROGRAMS

Mr. SIKES. Concerning the directorate for plans and programs within the Office of the Assistant Secretary of Defense for Public Affairs, the report states that considerable top level effort was devoted to reviewing messages previously used by public affairs personnel in the National Military Command Center. Several officials considered this unnecessary and a duplication of effort. Investigation by the staff further disclosed the underutilization and nonproductivity of top ranking personnel who were involved in the maintenance of personnel files, the coordination of proposed new releases, and the clarifying of policy from 4 to 6 years old. This would certainly appear to be unnecessary work which can be eliminated. What are your comments?

Mr. CAPEN. This is a recommendation of your staff that I can assure you will be given very detailed consideration on our part once we have received the report.

With regard to the National Military Command Center staff, I would only say that this is a very vital part of our public affairs operation. We have a 24-hour representation in the command center which enables us to respond on an immediate basis when we have a situation such as the shooting down of the EC-121. We have tremendous demand for answers to queries and it is terribly important that we have a direct public affairs representative who can assess incoming information and inform the leadership of the Public Affairs Office when a breaking development has public affairs implications.

CONSOLIDATION OF OFFICES WITHIN PUBLIC AFFAIRS

Mr. SIKES. Why is it necessary that there be nine separate directorates or offices within the Office of the Assistant Secretary of Defense for Public Affairs?

Mr. CAPEN. We don't believe it is necessary to have that many and we are in the process of consolidating several of those functions.

Mr. SIKES. What is the requirement for the media accreditation and tour staff?

Mr. CAPEN. That is one of those areas that is being consolidated and billets reduced where appropriate.

Mr. SIKES. The report states that two members of the media accreditation and tour staff have not been productively occupied for most of the time since January 1968, when their work was discontinued.

Now, you cannot answer for the fact that these people were retained on the personnel rolls when they did not have work to perform prior to the time that you took office. What can you tell us about the situation now?

Mr. CAPEN. We have found that in that particular office the people there were not being utilized as fully as I would expect them to be and for that reason we have undertaken consolidation to get more efficient full usage out of the personnel in our office.

SPECIAL PROJECTS STAFF

Mr. SIKES. The report further states that the current duties of the two grade 16's and the grade 15 on the special project staff did not fully utilize their talents and consideration has not been given to re-assigning them to other duties commensurate with their grade levels.

Can these positions not be abolished?

Mr. CAPEN. This is also an area we are giving consideration to in our review as directed by Deputy Secretary Packard.

Mr. SIKES. I would like for the committee to be advised regarding the results of these reviews that you are discussing.

Mr. CAPEN. We will be delighted to, Mr. Chairman.

(The information follows:)

As stated before, the overall functions of the Office of the Assistant Secretary of Defense (public affairs) are being reviewed. Our objective is to ensure the effective and efficient utilization of all personnel. We are studying several alternatives. In this regard, we welcome any recommendations made as a result of this committee's review of this office.

SERVICE ORGANIZATIONS DUPLICATING OSD

Mr. SIKES. The report points out that each military service has a chief of information office organized along the same lines as the Office of the Assistant Secretary of Defense for Public Affairs. Why is it necessary that each service have a similar organization as that of the Office of the Secretary of Defense for Public Affairs?

Mr. CAPEN. Mr. Chairman, our responsibilities in the Office of the Secretary of Defense for Public Affairs are to permit the maximum flow of information of national and international interest. Now, there is a great deal of information that pertains to each specific service that would not come into the Office of the Secretary of Defense level, but is very important informational matter to the services involved. For that reason, among others, the information offices are organized within each service to coordinate the flow of information within that service. I would guess a great percentage of the time and manpower within each of the services is utilized to maximize the flow of information within the services involved.

Mr. SIKES. Is it not possible that the duplication of operations between the various offices and those of the services could be completely eliminated?

Mr. CAPEN. This is an area that is part of our study. We have found that there are several functions that can be performed more efficiently by the services rather than at the OSD level, and for that reason we have moved ahead to return several billets to the services.

COST OF PUBLIC AFFAIRS

Mr. SIKES. I would like to have inserted in the record a schedule showing the total funds obligated during the fiscal year 1968, 1969, and those estimated to be obligated in fiscal year 1970 for public affairs, public relations and public information activities.

(The information follows:)

Obligations incurred or estimated to be incurred for the Office of the Assistant Secretary of Defense (public affairs) are as follows:

	<i>In thousands of dollars</i>
Fiscal year 1968.....	1,347
Fiscal year 1969.....	1,004
Fiscal year 1970.....	1,530

(NOTE.—These figures exclude all costs accumulated in the Central Services Account (such as supplies, equipment, and so forth) because as a general rule such items cannot be identified with a specific activity. Military personnel costs are not included as they are budgeted for by the respective military departments.)

PUBLIC INFORMATION DIRECTIVE

Mr. SIKES. May I have provided for the record the directive of the Secretary of Defense dated March 4, 1969, concerning public information principles?

(The information follows:)

THE SECRETARY OF DEFENSE,
Washington, D.C., March 4, 1969.

Memorandum for Secretaries of the Military Departments; Chairman of the Joint Chiefs of Staff; Director of Defense Research and Engineering; Assistant Secretaries of Defense; Assistants to the Secretary of Defense; Directors of the Defense Agencies.

Subject: Public information principles.

To assure that the American people are fully informed about matters of national defense, I intend that the Department of Defense shall conduct its activities in an open manner, consistent with the need for security. This means that unclassified information, other than that exempted by the Freedom of Information Act, must be readily accessible to the public and the press. Because of the importance I attach to this matter, I want to state certain principles which I expect to be followed in the conduct of public affairs activities of this Department.

1. Our first concern must be the security of the United States and the safety of our Armed Forces. Therefore, information which would adversely affect the security of our country or endanger our men should not be disclosed.

2. The provisions of the Freedom of Information Act (5 U.S.C. 552) will be supported in both letter and spirit.

3. No information will be classified solely because disclosure might result in criticism of the Department of Defense. To avoid abuse of classification procedures, we must adhere strictly to the criteria set forth in Executive Order 10-501.

4. Our obligation to provide the public with accurate, timely information on major Department of Defense programs will require, in some instances, detailed public information planning and coordination within the Department and with other Government agencies. However, I want to emphasize that the sole purpose

of such planning and coordination will be to expedite the flow of information to the public. Propaganda has no place in Department of Defense public information programs.

Therefore, I direct that each addressee review all pertinent directives, policies and public information plans to insure prompt and complete compliance with these principles. Those which do not meet the foregoing criteria will be revised or rescinded.

The Assistant Secretary of Defense (public affairs) is responsible for advising and assisting me in the fulfillment of these public information principles throughout the Department of Defense.

MELVIN R. LAIRD.

Mr. SIKES. Is that directive being enforced by the Department?

Mr. CAPEN. Yes, sir. Those principles, as outlined by the Secretary of Defense, stated in brief that it was his desire and directive that we conduct our public affairs activities in an open manner consistent with the needs of security. Our first concern must be the security of the United States and, therefore, information which would adversely affect the security of our country or endanger our men should not be disclosed. However, the Secretary made it quite clear that no information would be classified solely because disclosure could result in criticism of the Department of Defense. He made it very clear that he wanted our office to assist to the maximum extent possible in informing the American people and expediting the flow of information.

To that end we have undertaken regular morning news briefings for the newsmen who regularly cover the Department of Defense, or any other accredited newsmen who would care to come over. We feel that this has improved an understanding of the problems and issues that our country confronts with regard to the Department of Defense and national security.

Occasionally, when appropriate, when a subject is timely, we invite to our news briefings civilian and military experts in various areas where the newsmen have expressed a concern, all of which are aimed at providing better understanding of our problems and our responsibilities, all of which are aimed at permitting the maximum flow of information.

In addition, we receive a great many requests from all over the country for Department of Defense representatives to speak before various groups. We are attempting to the best extent possible to fill those requests. This is a rather major undertaking in itself. For example, since January we have had something between 200 and 250 of our top civilian and military people in the Department of Defense speaking at various functions.

REVIEW OF COMMITTEE'S REPORT

Mr. SIKES. After you have had time to review the report which the committee will make available to you, we would like to then be advised of any corrective action that you take as a result of the findings in the committee report, and we would like to be advised about other changes which are intended to provide savings or increase efficiency.

Mr. CAPEN. As I stated earlier, we welcome this information. It is most timely right now when we are conducting our own internal review so that we can operate as efficiently as possible.

BACKGROUND OF RICHARD G. CAPEN, JR.

Mr. SIKES. We have discussed these problems in a forthright manner and the committee appreciates the attitudes you have expressed.

What is your background?

Mr. CAPEN. Mr. Chairman, I was director of public affairs for the Copley newspapers. They published 17 daily newspapers in California and Illinois. My background is primarily at the corporate level so this area of the organization of our department is one that I have devoted some time to because I believe there are ways we can improve our efficiency over there, recognizing that we have a great many challenges in the informational field in the Department of Defense. We would like to be as effective communicators as possible.

Mr. ANDREWS. Have you been accused of any type of credibility gap?

Mr. CAPEN. No, sir.

Mr. SIKES. They haven't been here very long.

Mr. LIPSCOMB. It would be well to point out for the record that the study and investigation made of the Public Information Offices was by directive of this committee issued August 2, 1968, and was reported to this committee February 7, 1969. I believe we can commend Mr. Capen on his grasp of the subject without having seen our report. I think he has shown much interest and initiative in solving some of the very problems that the report points out. I think he already has done a good job.

Mr. SIKES. Thank you, Mr. Capen.

INTERNATIONAL MILITARY HEADQUARTERS

We will now take up cost of support of International Military Headquarters.

Will the Office of the Defense Adviser be responsible for the control and management of U.S. contributions in support of International Military Headquarters and Agencies?

Mr. FROEHLKE. I believe the answer to that one is "No." If I may have the right to correct it.

Mr. SIKES. Of course.

Mr. COOKE. International Headquarters are funded on a pro rata capital share by the military budget committee of NATO. The Defense Adviser is not directly involved in the apportionment process, although one of his people sits as representatives on various committees.

SUPPORT OF INTERNATIONAL MILITARY HEADQUARTERS AND AGENCIES

Mr. SIKES. Supply for the record the total amount being requested for support of International Military Headquarters and Agencies and the appropriations involved, and the amount for each organization, agency or activity and the applicable appropriations.

Mr. FROEHLKE. We will supply it.

(The information follows:)

The amounts being requested in fiscal year 1970 for support of International Military Headquarters in the DOD appropriations are indicated by organization or activity within each agency as follows:

Department of the Army (O. & M.):	
U.S. contribution:	
NATO -----	_____
CEOA -----	_____
NAMSO -----	_____
Support costs:	
CENTAG -----	_____
CEOA -----	_____
NATO Hawk support -----	_____
NAMSO -----	_____
U.S. representative to NATO Military Committee -----	_____
SHAPE -----	_____
International military staff -----	_____
Total -----	<u>\$28,659,000</u>
Department of Navy: U.S. contribution—SEATO (O. & M.) -----	
Support costs:	
ASW Research Center (R.D.T. & E.) -----	_____
Departmental (O. & M.) -----	_____
SEATO (O. & M.) -----	_____
Total -----	<u>361,000</u>
Department of Air Force:	
U.S. contribution:	
Von Karman Institute (O. & M.) -----	_____
CENTO (O. & M.) -----	_____
Support costs:	
AGARD (O. & M.) -----	_____
CENTO (R.D.T. & E.) -----	_____
Von Karman Institute (O. & M.) -----	_____
SHAPE Technical Center (O. & M.) -----	_____
4th ATAF (O. & M.) -----	_____
Total -----	<u>1,053,000</u>
OSD (O. & M.): Support costs -----	<u>1,157,000</u>
State (O. & M.): Support costs -----	<u>379,000</u>
Grand total -----	<u>31,230,000</u>

CENTRAL SERVICE OPERATIONS

Mr. SIKES. On the cost of central service operations, we note from the justifications that the request for central service operations is increasing again this year. Although the net increase is only \$31,000, we note there are some rather large increases involved within the account. Why should there be this continued increase in operating costs of the agency? Supply that for the record.

Mr. FROEHLKE. Do you have anything specifically in mind, Mr. Chairman? One of the main items would be again NATO.

The adviser to NATO is approximately \$278,000 which wasn't in there in the previous years, so that is a significant item.

(The information follows:)

As was indicated in the opening statement a reduction of \$247,000 was accomplished in the central service account. However, the decision to change the funding of the USNATO operations from MAP to operation and maintenance with the associated central services estimated costs of \$278,000 resulted in a net increase of \$31,000 in this account. Except for the aforementioned expenses any increases in items of expense are offset by a similar reduction in other items of expense.

OFFICE OF SPECIAL STAFF ASSISTANT

Mr. SIKES. With regard to the cost of the operation of the Office of Special Staff Assistant, that is increasing by \$885,000 in 1970 because of the assignment of the function of defense adviser to NATO, as we just discussed. Now, we also note that the central service cost is being increased by \$260,000 for administrative support to U.S. NATO. What is the requirement for this administrative support cost?

Mr. FROENLKE. This is comparable to the administrative support, Mr. Chairman, that we offer to the Joint Chiefs of Staff and to the Office of the Secretary of Defense to make sure that they do have an operating function in Belgium, and office function.

SPECIAL ASSISTANT FOR NATO AFFAIRS

Mr. SIKES. Does this support the operating costs of the Special Assistant for NATO Affairs?

Mr. FROENLKE. This is for the Office of the Special Assistant.

Mr. SIKES. Then what you are saying is, it is taking \$260,000 in addition to the \$885,000 to run this office?

Mr. FROENLKE. Yes. I believe the total figure to run the office in NATO is approximately \$1,100,000.

INCREASED COST OF COMPUTER SERVICES

Mr. SIKES. The costs of computer services has increased by \$1,091,000 since fiscal year 1968. Why is there that requirement?

Mr. FROENLKE. Here again I am calling upon one of my colleagues, but I will preface it with the statement that I believe this is another sign of our times. I believe if you will go to any major corporation that does have a data processing center, you will find it is the same story. We are attempting to computerize as much of the administrative detail as we can. We believe that in the process we are saving substantially, particularly in the clerical area.

Mr. SIKES. If you can, identify those savings for the record.

(The information follows:)

Computers have been used for approximately 15 years within the DOD. The most successful use of these computers have been in the area of routine data handling because they give more reliable and faster service over manual methods.

Using the DOD military prime contracts file system as an example to clerically sequence, add, post, type, and proof this file of 214,000 records to provide four basic reports, would have required approximately 4,840 man-hours. By comparison, the computer processes those data in 4 hours and 30 minutes. This does not imply that clerks are not needed, but, rather that a small staff can accomplish far more than by manually processing data with a large clerical staff; thereby reflecting the savings desired.

Another typical clerical savings is the computer processed pamphlet of military prime contract awards by State and geographic region. Here, individual tables are shown for each State breaking out total procurement according to 25 major

categories of supplies, equipment, test, and evaluation (R.D.T. & E.) work by State and region. From the basic military prime contracts file these reports are generated in 3 hours and 30 minutes, and within 48 hours are available for the printer: Clerically processing these tables would require approximately 1,210 man-hours and the clerical response time necessary to provide the same data and report would completely negate the value of the report. With the rapid access to data, a small clerical staff can direct its efforts to the analysis of the products rather than in the preparation of it.

Additional benefits are derived; for example, by providing the Labor Department with magnetic tape data from the same records, which they in the past acquired clerically, thereby eliminating unnecessary duplication and overlapping of effort—again realizing a savings in both clerical and computer effort.

Another savings, which is most difficult to quantify, is realized by having a data base in existence that can be used to answer questions concerning contracts in various geographic areas of the United States. In fact, many responses are made to congressional queries from this data base that could only be done on a timely basis by the computer.

We are doing things today that are only possible because of the advanced state of computer technology and experience in its applications.

Mr. SIKES. Does anyone wish to add to what has been said?

Mr. COOKE. I note that our fiscal year 1970 budget is actually a decrease in computer services of \$53,000 from our fiscal year 1969 estimate. It is substantially over our actual 1968 budget.

Mr. SIKES. The original estimate for computer services for fiscal year 1969 was \$1,304,000. The revised estimate is now \$1,578,000. That is \$274,000 increase in this fiscal year. Why was that necessary?

Mr. COOKE. Basically, Mr. Chairman, the increase was in computerizing our foreign disclosure policy. As a part of the Munitions Control Act, we are asked to make literally thousands of transactions with regard to releasing a given piece of technical information. The increase for the revised fiscal year 1969 was to set up a computer with a software system.

Mr. SIKES. Is this a one-time increase?

Mr. COOKE. Yes, sir.

Mr. FROEHLKE. Yes, sir; \$590,000.

NEWS FILM ON VIETNAM

Mr. SIKES. What is the sound news film release for which you are requesting \$160,000?

Mr. FROEHLKE. This is the film taken in Vietnam, rushed back to the United States, processed and then made available to the various news media in the United States to be used to show the conduct of the war in Vietnam.

Mr. SIKES. Isn't this being done by all of the news services anyway?

Mr. FROEHLKE. To a limited extent, certainly, there would be duplication.

Mr. SIKES. It may be well to have yours if it provides some factual information about what is going on or being done over there, rather than the propaganda that often appears to emphasize the wrong side of the story.

Mr. COOKE. Mr. Chairman, our usage factor on that film in the period April 1967 to December 1968 was 75.5 percent, which indicates that the American public, through the TV media, is getting a chance to see what our own combat photographic teams are doing in Vietnam.

FILM ON DEFENSE ORGANIZATIONAL ENTITY SYSTEM

Mr. SIKES. That can be very useful.

What is the purpose of the "Training Film for Defense Organizational Entity System"?

Mr. FROEHLKE. I do not have the answer to that.

Mr. COOKE. Mr. Chairman, the Assistant Secretary of Defense, Comptroller, over the last several years, has been attempting to establish a standard system for identifying the literally thousands of organization entities, components and subcomponents within the Department of Defense. He has succeeded in establishing this system. The purpose of that training film, is for inservice, or on-the-job training of the people involved in standardizing the system because we will have thousands of people involved in running the system.

NEWS STUDIO CONFERENCE FACILITY

Mr. SIKES. Last year you requested \$250,000 for enlarging the news studio conference facilities. Was this project built or deferred?

Mr. FROEHLKE. This project was deferred. We do not have it in this budget.

Mr. SIKES. What happened to the funds?

Mr. FROEHLKE. The funds are there. They were not spent.

Mr. SIKES. Will they revert to the Treasury?

Mr. FROEHLKE. I believe not.

Mr. FISHER. They are savings at the present time and we will identify this to the ASD (Comptroller) for reallocation within the overall "Operation and maintenance, defense agencies" appropriation as he sees fit.

Mr. SIKES. Are there any funds this year for the evaluation of technical manuals?

Mr. FROEHLKE. No, sir.

DOD FOREIGN DISCLOSURE RECORDS CENTER

Mr. SIKES. On January 18, 1969, \$590,000 of fiscal year 1969 funds was transferred from the Air Force to the central service activities for the establishment of the DOD Foreign Disclosure Records Center. What is the purpose of this center?

Mr. FROEHLKE. That is the center Mr. Cooke just commented on. We are putting the myriad of information that we do send to our allies overseas, on computers so we can determine much more readily what is available, where it is going, what the restrictions are.

Mr. SIKES. A little while ago, in explaining the increase of \$274,000 in computer services for 1969, you referred to that as a part of the cost of the Foreign Disclosure Records Center, but the funds for the operation of the Foreign Disclosure Records Center were transferred from the Air Force, if I remember correctly. So, therefore, it would appear that the \$274,000 was used for some other type of computer service. Would that be correct?

Mr. COOKE. No, sir, in the President's budget for computer services we went from \$1.3 million to \$1.578 million, an increase of \$274,000, which was included within the function transfer from the Air Force to OSD for the Foreign Disclosure Policy and Records Center.

Mr. SIKES. Then, in effect, the cost of this operation is something in the neighborhood of \$850,000 instead of the \$590,000 that was reprogramed?

Mr. COOKE. No, sir. Included within the \$590,000 was \$274,000 for the item of "Computer services."

Mr. SIKES. Where are the funds for the operation of this center included in the secretarial activities for fiscal year 1970?

Mr. FROEHLKE. It is \$85,000 which we anticipate will be continuing. I believe it is in ISA.

CONSULTANTS

Mr. SIKES. Mr. Secretary, in your immediate operation, you are requesting an increase of \$44,000 for additional consultant services within the Office of the Secretary of Defense activities. What is the total amount being requested for consultant services?

Mr. FROEHLKE. The fiscal year 1969 amount is \$265,000 and next year we are requesting \$285,000.

Mr. SIKES. And for fiscal year 1968?

Mr. FROEHLKE. May I supply that for the record?

Mr. SIKES. All right.

(The information follows:)

In fiscal year 1968, the cost of consultant services was \$160,851.

Mr. SIKES. Why is an increase of this nature necessary?

Mr. FROEHLKE. One reason that we look to consultants upon occasion is we are seeking certain people with specialized backgrounds, the specialty normally being in the technical areas. Another reason is for emergency situations when we want someone for a day or two, or a week. We don't want to hire a man to do the job on a full-time basis.

Mr. SIKES. How do you determine who is eligible for service as a consultant? What are the qualifications?

Mr. FROEHLKE. Of course, this will vary depending upon the area in which he is a professional, an expert. The individual Assistant Secretary for the Office of the Secretary of Defense must make the initial determination. This is then submitted to my office. We review the recommendation; we review the background and then the Assistant Secretary, administration, either concurs or denies. Education and experience would be the primary bases for accepting or denying.

Mr. SIKES. I would like to have listed for the record the number of consultants employed during fiscal 1968-69 and those anticipated for employment in fiscal year 1970. For your information, a similar schedule appeared on page 149, part IV of last year's hearings.

The anticipated employment of consultants for fiscal year 1970 is currently under review by the Secretary of Defense. Since the names of the consultants for fiscal year 1970 are not currently available, this information will be provided to the committee at a later date.

CONSULTANTS USED IN FISCAL YEAR 1960

NAME AND TYPE OF DUTIES

The Special Assistant to the Secretary and Deputy Secretary

Buzhardt, Fred J., adviser to the Assistant to the Secretary of Defense.
Prendergast, William B., consultant to the special assistant on matters of importance to the Secretary of Defense.

Office, Director Defense Research and Engineering

Alley, Dr. Carroll O., Jr., member, special group on optical masers, advisory group on electron devices.
Alpert, Dr. Daniel, member defense science board.
Balzhiser, Dr. Richard D., member, task force on civil defense.
Collins, Dr. Robert J., member, advisory group on electron devices.
Daniels, Mr. Rexford, advises D.D.R. & E. on electromagnetic compatibility.
Dow, Dr. Daniel G., member, advisory group on electron devices.
Ferri, Dr. Antonio, member, task force on future military technology.
Gell-Mann, Dr. Murray, member, task force on anti-infiltration system.
Goetze, Dr. Gerhard W., member, advisory group on electron devices.
Goldberger, Prof. Marvin L., member, task force on anti-infiltration system.
Gould, Dr. Lawrence, member, advisory group on electron devices.
Griggs, Prof. David T., member, defense science board.
Heffner, Dr. Hubert, member, advisory group on electron devices.
Henline, Lt. Col. Clair G. (ret.), advises D.D.R. & E. through Assistant Director (communications and electronics) on R. & D. programs (electronic devices and optical masers).
Hill, Mr. David A., member, advisory group on electron devices.
Laidlaw, Dr. William R., advises on the F-111 programs within D.D.R. & E. responsibility.
Laurino, Richard K., DSB task force—civil defense.
Lewis, Dr. Harold W., member, task force on anti-infiltration system.
MacDonald, Dr. Gordon J. F., member, defense science board.
McCulloch, Dr. Warren S., member, task force on future military technology.
Norberg, Dr. Richard E., advise on problems related to university participation in defense basic research programs.
Panoff, Mr. Robert, advise D.D.R. & E. on antisubmarine warfare programs.
Pool, Dr. Ithiel de Sola, member, defense science board.
Seltz, Dr. Frederick, member, defense science board.
Sheingold, Dr. Leonard S., member, defense science board.
Slevers, Dr. Albert J., III, member, task force on civil defense.
Smith, Dr. Harold P., Jr., member, task force on missile vulnerability.
Van Lint, Dr. Victor, member, task force on missile vulnerability.
Villard, Prof. O. G., Jr., member, task force on electronic warfare.
Wade, Dr. Glen, member, advisory group on electron devices.
Zachariasen, Prof. Fredrik, member, task force on anti-infiltration systems.
Zarafonitis, Dr. Chris, J. D., provide expert advice on DOD biomedical research program; performs as chairman, Joint Medical Research Conference.

Advanced Research Projects Agency

Carpenter, Peter F., member of the SIAF (small independent action forces) project.
Jacobs, Milton J., specialist in evaluating and assessing the technical quality of the rural security systems program—Thailand.
Kerr, Richard C., specialist on mobility research.
Morris, J. Stephen, specialist on employing psychological techniques and principles.

Nicholson, George E., Jr., specialist on providing technical advice on special physical and mathematical problems.
 Nierenberg, William A., member, AGILE advisory committee.
 Oppenheim, Irwin, specialist in evaluating and assessing R. & D. programs in gas dynamics, flour field and plasma physics.
 Penner, Standofrd, Solomon, specialist in physical and behavioral scientific problems.
 Sproull, Robert L., specialist on materials sciences.
 York, Herbert F., specialist in physical and behavioral scientific problems.

Office, Assistant Secretary of Defense (Administration)

Colglazier, Robert W., petroleum study.
 Ewbank, William L., security activities.
 Fitch, Alva R., intelligence, military deployments.
 Froehke, Robert F., administrative and organizational matters.
 Gerhardt, Harrison A., national security policy strategy.
 Gordon, Bernard K., foreign policy, national security policy.
 Hardt, John P., foreign policy, national security policy.
 Hoover, Joseph S., financial management.
 Kintner, William R., national security policy, international affairs.
 Lamson, Roy, international relations, politico-military matters.
 Wright, Jerauld, military deployments, strategy, technology.
 Wright, William H. S., national security policy, international affairs strategy.

Office, Assistant Secretary of Defense (Comptroller)

Anthony, Robert N., consults on the functional responsibilities of the Comptroller's Office.
 Cooper, John H., consults on planning, programing and budgeting activities for military personnel programs.
 Koop, W. Brewster, consults on expense controls.
 Schiavone, Harry R., consults on planning, programing and budgeting activities for classified programs.
 Walker, Ross G., consults on resource management systems.

Office, Assistant Secretary of Defense (Installations and Logistics)

Barth, Max, architectural expert.
 Carrol, Mr. Roy, architectural expert.
 Hunter, Comm. A. D. (retired) U.S. Navy, Southeast Asia construction problems.
 Kyle, Mr. John M., Jr., construction problems.
 Minton, MajGen. A. M. (retired) U.S. Air Force, Southeast Asia construction problems.
 Mowitz, Dr. Robert J., economic adjustment problems.
 Trennor, Robert L., assists in emergency planning aspects.
 Webb, William Y., assists in damage assessment activities.
 Wilson, L/Gen (Ret) W. K. USA, Southeast Asia construction problems.

Office, Assistant Secretary of Defense (International Security Affairs)

Bleiman, Junius J., advises on political-military and strategic planning problems.
 Cooper, Theodore L., assists in the preparation of the MAP Congressional Presentation document.
 Fisher, Roger, advises on worldwide problems in the field of disarmament.
 Nutter, G. Warren, pending appointment as assistant Secretary of Defense (international security affairs).
 Ullman, Richard C., advises on strategic aspects of U.S.-Soviet relations.
 Ware, Richard A., provides advice to the ASD (ISA) on organizational matters pertaining to ISA.
 Warnke, Paul C., advises on a wide range of topics covering international security affairs.
 Yarmolinsky, Adam, renders expert assistance on a variety of international political/military matters.

Office, Assistant Secretary of Defense (Manpower and Reserve Affairs)

Abraham, Willard, DOD model schools workshop.
 Anderson, Robert H., DOD model schools workshop.
 Babcock, Kenneth B., DOD medical advisory council.
 Barnhart, Fred P., DOD dental advisory committee.
 Belvin, John O., DOD model schools workshop.
 Burket, Lester W., DOD medical advisory council.
 Caughey, John L., DOD medical advisory council.
 Castellano, Vito, dependents' medical care advisory committee.
 Carp, Abraham, DOD post-war role in youth development programs and personnel/training/manpower research.
 Crawford, Bonner M., dependents schools (overseas)—North Central accreditation.
 DeBakey, Michael E., DOD Medical Advisory Council.
 Dolan, Margaret B., DOD nursing advisory committee.
 Esbensen, Thorwald, DOD model schools workshop.
 Fisk, Shirley C., DOD medical advisory council.
 Forrest, Munn D., dependents education (overseas)—North Central accreditation.
 Fox, Thomas P., DOD dental advisory committee.
 Gerich, Jerry J., dependents education (overseas)—North Central accreditation.
 Hampton, Oscar P., Jr., DOD medical advisory council.
 Hassenplug, Lulu W., DOD nursing advisory committee.
 Haynes, Inez, DOD nursing advisory committee.
 Hudson, Charles B., DOD medical advisory council.
 Layne, John A., DOD medical advisory council.
 Lowman, Victor E., dependents education (overseas)—North Central accreditation.
 McCormack, James E., DOD medical advisory council.
 McTighe, John A., military Retirement study.
 Olson, Leon B., Dependents education (overseas)—North Central accreditation.
 Palladino, Ralph A., Reserve affairs.
 Parker, Simon D., dependents Education (overseas)—North Central accreditation.
 Rasmussen, Lavern, DOD model schools workshop.
 Ribble, John, Chaplains board.
 Rockafellow, Theodore F., dependents education (overseas)—North Central accreditation.
 Schomburg, August, Defense career executive institute.
 St. Cyr, Carol Ruth, DOD model schools workshop.
 Tullis, James L., DOD medical advisory council.
 Wear, Maurice D., Dependents education (overseas)—North Central accreditation.
 Wells, John M., Absentee voting.
 Whitaker, Judith G., DOD Nursing Advisory Committee.
 Wilson, David B., DOD medical advisory council.

Office, Assistant Secretary of Defense (Public Affairs)

Capen, Richard G., public affairs expert.

Office, Assistant Secretary of Defense (Systems Analysis)

Bernstein, Charles H., advises on new applications of systems analysis to support DOD decisionmaking.
 Boutwell, W. Kenneth, Dr., advises on use of linear programming and computer simulation models in analyzing defense airlift requirements.
 Dickey, George E., Dr., advises on allied forces requirements for ordnance.
 Kaufmann, William W., Dr., advises on new approaches and concepts and alternative force structures and strategies.
 Keller, John E., advises on new approaches and concepts and alternative mixes and trade-offs involving strategic mobility and airlift/sealift forces.
 Marshall, Paul W., advises on new and improved intelligence programs.
 Melling, W. Phillip, advises on surface-to-air missiles, ship force levels, and fleet anti-air warfare systems.
 Nolan, Richard L., advises on use of linear programming and simulation models in analyzing defense airlift requirements.

- Peterson, Clair A., Dr., analysis of non-nuclear ordnance requirements for the tactical air forces.
- Riesler, Roger F., Dr., economic analysis of defense expenditure and the Vietnamese conflict on the domestic economy.
- Walker, Norman, Dr., analysis of missile systems in relation to human operator control systems.

CONSULTANTS USED IN FISCAL YEAR 1968

NAME AND TYPE OF DUTIES

Office, Director Defense Research and Engineering

- Alley, Carroll O., member, special group on optical masers, advisory group on electron devices.
- Alpert, Daniel, member, defense science board; chairman, task force on Federal contract research centers.
- Booker, Henry G., member, task force on command control communications technology.
- Collins, Robert J., chairman, special group on optical masers, advisory group on electron devices.
- Daniel, Phillip Jas., member, task force on command control communications technology.
- Daniels, Rexford, advises D.D.R. & E. on electromagnetic compatibility; chairman, Electromagnetic Side Effects Panel of Joint Technology Advisory Committee to President, representing DOD.
- Ferri, Antonio, member, task force on assessment of U.S. Technical Military Posture—1980.
- Geldard, Frank A., member, task force on the behavioral sciences.
- Goetze, Gerhard W., member, working group on special devices, advisory group on electron devices.
- Gould, Lawrence, member, working group on microwave devices, advisory group on electron devices.
- Griggs, David, member, defense science board; member, task force on research policy and on vulnerability.
- Haire, Mason, member, task force on behavioral sciences.
- Heffner, Hubert, chairman, working group on microwave devices, advisory group on electron devices.
- Helliwell, Robert A., member, task force on command control communications technology.
- Hendrick, Roy W., member, advisory group on analysis of special weapons effects data.
- Henline, Clair G., advises D.D.R. & E. through assistant director (communications & electronics) on R. & D. programs (electronic devices and optical masers).
- Hill, David A., member, advisory group on electron devices.
- Jacobs, Milton, member, task force on behavioral sciences.
- Laidlaw, William R., advises on the F-111 programs within D.D.R. & E. responsibility.
- Lehan, Frank W., member, task force on command control communications technology.
- Longacre, Andrew, member, task force on tactical aircraft.
- McCulloch, Warren S., member, task force on assessment of U.S. technical military posture—1980.
- McDonnell, Gerald M., member, defense science board; chairman, advisory panel on medical and biological sciences.
- Panoff, Robert, member, task force on antisubmarine warfare.
- Pool, Ithiel de Sola, member, task force on assessment of U.S. technical military posture—1980.
- Rediker, Robert H., member, special group on optical masers.
- Reynolds, Wallace B., advise D.D.R. & E. on Federal contract research centers.
- Rowe, Joseph Everett, member, working group on microwave devices.
- Russell, Roger, member, task force on behavioral sciences.
- Schelling, Thomas C., member, defense science board.
- Seitz, Frederick, member, defense science board.
- Shepherd, William G., chairman, DOD advisory group on electron devices.
- Smith, Harold P., Jr., member, task force on vulnerability.

Suttle, Andrew D., Jr., member, defense science board; task force on research policy and on antisubmarine warfare.
 Stever, H. G., member, defense science board.
 Tasker, Homer G., member, task force on tactical aircraft.
 Van Lint, Victor A. J., member, task force on vulnerability.
 Villard, Oswald G., Jr., member, task force on command control communications technology and on electronic warfare.
 Wade, Glen, member, advisory group on electron devices.
 Wiesner, Jerome, member, task force on assessment of U.S. technical military posture—1980.
 Miller, Charles O., provide advice to D.D.R. & E. through Assistant Director (engineering management) relative to systems safety engineering.

Advanced Research Projects Agency

Brodia, Herbert, member O.D.D.R. & E. reentry programs review group.
 Brueckner, Keith A., member, Ballistic Missile Defense Advisory Committee.
 Isaacs, John D. III, specialist in physical and behavioral scientific problems.
 Kaufman, Sidney, specialist in nuclear test detection.
 Kerr, Herbert, specialist on mobility research.
 Nierenberg, William A., member, AGILE Advisory Committee.
 Penner, Stanford Solomon, specialist in physical and behavioral scientific problems.
 Sproull, Robert L., specialist on materials sciences.
 Sutherland, Ivan E., specialist on computing techniques.
 Wharton, Lennard, member, Ballistic Missile Defense Advisory Committee.
 Worchel, Philip, specialist in behavioral science research.
 York, Herbert F., specialist in physical and behavioral scientific problems.

Office, Assistant Secretary of Defense (Administration)

Blaisdell, Carl W., management analyst.
 Hoover, Joseph S., financial management.

Office, Assistant Secretary of Defense (Comptroller)

Kopp, W. Brewster, consults on expense controls.
 Schiavone, Harry R., consults on planning, programing and budgeting activities for classified programs.
 Selogle, Louis A., consults on management control systems used in the acquisition of weapon and support systems.

Office, Assistant Secretary of Defense (International Security Affairs)

Bergsten, Fred C., advises on balance-of-payments problems.
 Coffey, Joseph I., provides advice on strategic defensive systems in underdeveloped countries.
 Fisher, Roger D., advises on worldwide problems in the field of disarmament.
 Goldstein, Walter, advises on arms control, nonproliferation and disarmament in the European area.
 Gustin, James R., advises on military assistance policy matters.
 Kaufmann, William, advises on all aspects of international security matters.
 Kingsley, Joseph T. Jr., major general, U.S. Air Force (retired), performed a special assignment in Brazil, with Deputy Director of Military Assistance.
 Murray, Richard G., contingency planning with emphasis on the NATO and Southeast Asia areas.
 Petersen, Norman V., provides assistance on research-based, long-range planning in the fields of regional, national and global problems of arms control.
 Quester, George H., advises on matters concerning strategic systems.
 Schwartz, Abba, advises on POW-related activities.
 Yarmolinsky, Adam, renders expert assistance on a variety of international politico-military matters.

Office, Assistant Secretary of Defense (Manpower and Reserve Affairs)

Austin, Charles F., defense career executive institute.
 Aslin, Neil C., dependents schools (overseas)—north central accreditation.
 Babcock, Kenneth B., DOD medical advisory council.
 Barnhart, Fred P., DOD dental advisory committee.
 Burket, Lester W., DOD medical advisory council.
 Cassidy, Helen, dependents medical care advisory committee.
 Caughey, John L., DOD medical advisory council.
 Clark, Dean A., dependents medical care advisory committee.
 Coffey, Robert J., dependents medical care advisory committee.
 Comm, Edward D., task force on Selective Service System.
 Corbin, Frank K. P., compensation pay study.
 Corley, Karl C., dependents medical care advisory committee.
 DeBakey, Michael E., DOD medical advisory council.
 DeWitt, Harry M. Jr., personnel research program review.
 Dolan, Margaret B., DOD nursing advisory committee.
 Elliott, Robin, defense career executive institute.
 Faulkner, Edwin D., dependents' medical care advisory committee.
 Fisk, Shirley C., DOD medical advisory council.
 Fox, Thomas P., DOD dental advisory committee.
 Garner, S. Paul, management education and training programs.
 Grambsch, Paul V., management education and training programs.
 Hampton, Oscar P., Jr., DOD medical advisory council.
 Hassenplug, Lulu, DOD nursing advisory committee.
 Haynes, Inez, DOD nursing advisory committee.
 Hecht, Fred C., audit of problems of managing PX operations in SEA.
 Hudson, Charles B., DOD medical advisory council.
 Kelly, Denwood N., dependents medical care advisory committee.
 Layne, John A., DOD medical advisory council.
 Leigh, Howard W., dependents schools (overseas)—north central accreditation.
 Lerner, Joseph S., dependents' medical care advisory committee.
 Little, Roger, in-depth analysis and programmatic inputs—special reference to Negro military personnel.
 Logsdon, James D., dependents schools (overseas)—north central accreditation.
 Magruder, Carter B., task force on selective service system.
 Marks, John R., dependents medical care advisory committee.
 McCormack, James E., DOD medical advisory council.
 Mitchell, James M., defense career executive institute.

Mr. FROEHLKE. We had 143 actually paid in fiscal year 1968 and in fiscal year 1969 we appointed 164. Inasmuch as we still haven't completed fiscal year 1969, I cannot give you the figure for actually paid. It will be in that area, however.

Mr. LIPSCOMB. I might suggest that the fiscal year will be over in a short while and we can have a complete consultant list this time. The list last year was not complete.

Mr. FROEHLKE. We will submit a complete list.
 (The information follows:)

Myers, Clark E., management education and training programs.
 Ostrander, F. Darl, dependents' medical care advisory committee.
 Phelps, Malcolm E., dependents' medical care advisory committee.
 Pisani, Bernard J., DOD medical advisory council.
 Rault, Clemens V., DOD dental advisory council.
 Ribble, John, chaplains board.
 Robinson, Paul I., dependents' medical care advisory committee.
 Roth, Russell B., dependents' medical care advisory committee.
 Schomberg, Augustus, defense career executive institute.
 Senshore, Charles, in-depth analysis and programmatic inputs—special reference to Negro military personnel.

Smith, Ralph S., dependents' medical care advisory committee.
 Snoko, Albert W., dependents' medical care advisory committee.
 St. Cyr, Carol Ruth, dependents education—administrative guides—district and area level.
 Stinchfield, Frank E., DOD medical advisory council.
 Stubblefield, Robert L., dependents' medical care advisory committee.
 Tullis, James L., DOD medical advisory council.
 Van Wagoner, Lou George, task force on Selective Service System.
 Volkland, Erle W., dependents schools (overseas), north central accreditation.
 Wells, John M., absentee voting.
 Whitaker, Judith G., DOD nursing advisory committee.
 White, William C., dependants' medical care advisory committee.
 Wilson, David B., DOD medical advisory council.
 Woods, Tighe E., off-base housing.
 Wylie, Robert H., DOD medical advisory council.

Office, Assistant Secretary of Defense (Systems Analysis)

Brandl, John E., Dr., advises on case studies and instructional materials.
 Cownie, John B., Dr., advises on economic issues.
 Dellinger, David C., Dr., advises on requirements for Armed Forces.
 Dickey, George E., Dr., advises on Allied Forces requirements for ordnance.
 Fayret, Andrew, Dr., advises on generalized ADP support requirements.
 Hallock, Richard R., advises on special weapon systems of unusual sensitivity.
 Kaufmann, William W., Dr., advises on new approaches and concepts and alternative force structures and strategies.
 Keller, John E., advises on new approaches and concepts and alternative mixes and trade-offs involving strategic mobility and airlift/sealift forces.
 Melling, Phillip W., evaluation of surface to air missiles, ship force levels, and fleet antiwar warfare systems.
 Murphy, George G. S., Dr., advises on methods to assess the effects of defense programs and proposed changes.
 Nolan, Richard L., Dr., analysis of alternative combat rescue systems.
 Peterson, Clair A., Dr., analysis of nonnuclear ordnance requirements for the tactical air forces.
 Trapnell, Phillip B., mathematical analyses of alternative antisubmarine warfare forces and systems.

OFF-BASE HOUSING PROGRAM

Mr. SIKES. Have you expanded the operation of the off-base housing during the last fiscal year?

Mr. FROEHLKE. May I ask General Benade to comment in this area?

General BENADE. Effective November 25, 1968, the program was extended to all installations in the United States.

We now have approximately 364 installations where the off-base housing program is being vigorously pursued.

Mr. SIKES. How many were assigned at this time a year ago?

General BENADE. Engaged in the program, sir?

Mr. SIKES. Yes.

General BENADE. May I supply that for the record, Mr. Chairman.

COST OF REFERRAL PROGRAM

Mr. SIKES. Yes, and I would also like to have inserted in the record information similar to that appearing on pages 207 and 208 of last year's hearing.

General BENADE. Very well, sir.

(The information follows:)

HOUSING REFERRAL PROGRAM

(Dollar amounts in thousands)

	Civilians	Military	Total	Family housing management account	Military personnel costs
Estimated fiscal year 1969 staffing and cost:					
Army.....	85	165	250	\$700	\$815
Navy.....	28	132	160	250	650
Marine Corps.....	3	16	19	20	91
Air Force.....	70	363	433	545	1,787
DASA.....	0	2	2	1	13
Total.....	186	678	864	1,516	3,356
Proposed fiscal year 1970 staffing and cost:					
Army.....	166	189	355	1,356	1,190
Navy.....	85	85	170	656	644
Marine Corps.....	8	11	19	66	78
Air Force.....	256	254	510	1,930	1,969
DASA.....	2	0	2	17	0
Total.....	517	539	1,056	4,025	3,881

Note: At the inception of the program during fiscal year 1968 no funds were available and the work was absorbed by housing personnel on board and by temporarily assigned military personnel. It is estimated that 125 man-years were devoted to the program during fiscal year 1968 at a cost of approximately \$960,000.

COMMITTEE TO BE ADVISED OF CHANGES IN PROGRAM

Mr. SIKES. Last year and the year before that we asked that this committee be notified of any changes in the operation of the off-base housing activities. We would like to be sure that this procedure is followed in the future and that we be kept informed of any and all changes. May we anticipate, Mr. Secretary, that this will be done?

Mr. FROEHLKE. Yes, sir.

Mr. SIKES. Have there been any significant changes in the program and the operation of the program within the past year?

General BENADE. I think there have been no significant changes as such, Mr. Chairman. I think the major significance was the expansion of the program and the fact that it has continued to achieve ever improving success. The committee may be interested to know that on August 31, 1967 approximately 22 percent of the surveyed living units near our military bases were all that were open on an equal basis. By May 31, 1969, a period of 2 years, approximately 1.3 million of the units surveyed were open. That is a gain of 74 percent.

In total, about 96 percent of the housing units near our military bases now are open without discrimination to all service members.

PERSONNEL ASSIGNED TO PROGRAM

Mr. LIPSCOMB. General, how many people do you have working on off-base housing now?

General BENADE. I couldn't give you a figure, sir, but at each of the bases there is a housing referral office. This is a full-time duty for the military people involved. There is usually one officer and he may be assisted by enlisted personnel depending on the size of the installation.

Now, that office exists for more than just the discrimination program. It operates as a service to assist military families who are coming into the area and who apply at the office for assistance in finding suitable housing within their income, and so on.

The available units, both rental and for purchase and so on, apartments, homes, are listed with the housing office, and the housing office is able to use these lists, taking into account then the needs of the families in terms of number of children, ages, school problems, and this kind of thing.

He is able to assist them by referring them to the appropriate type of unit for rent or for purchase. These same people also vigorously look after the discrimination item.

Mr. LIPSCOMB. If you can't determine in the field how many civilian and military personnel are working on rental of off-base housing, how large an operation do you have at the Pentagon or in Washington, D.C., in putting out instructions and orders?

General BENADE. I didn't mean we didn't know the number, sir. We can certainly provide that for the record. I just don't happen to have the figure in my head. We can give you an accurate figure on the people employed at the bases.

Mr. SIKES. How long have you been assigned to this field of activity, General?

General BENADE. It is not my field of activity, sir. It is in another office. I am simply speaking for them. I am the Deputy Assistant Secretary for Military Personnel Policy. This particular program falls in another office, but I am just speaking for them. They don't have a representative here.

Mr. LIPSCOMB. How large an office is that?

General BENADE. Which, sir?

Mr. LIPSCOMB. The one that reads "Rental of Off-Base Housing: Equal Opportunity for Military Personnel."

General BENADE. It is a relatively small office, sir. Equal opportunity in housing is in the Office of the Deputy Assistant Secretary for Civil Rights and his total staff is somewhere or on the order of 15 or 18 people as I recall. This is just one of the programs for which that office is responsible. It is a very small office. Housing Referral is in the Office of the Assistant Secretary of Defense (Installations and Logistics) where the program is coordinated by one person.

OFF-BASE HOUSING DIRECTIVES

Mr. LIPSCOMB. Whoever it is run by must have to put out instructions and bulletins, and so forth.

General BENADE. Yes, sir. Guidance is provided by the Office of the Secretary of Defense, but the main part of the effort and the actual conduct of the program is done by the military services. The Office of the Secretary of Defense provides the policy guidance.

COST OF HOUSING REFERRAL PROGRAM

Mr. LIPSCOMB. Would it be possible for you to itemize for the record the cost of this program in 1968 and 1969 and estimated 1970, operation and maintenance personnel?

General BENADE. Yes, sir; I think this can be provided.

There is an interesting figure. I do recall that the approximate cost in the field of providing this assistance has been averaged out to about \$4 per military family in O. & M. costs. For the type costs you are referring to, we can certainly get military and civilian personnel costs.

Mr. LIPSCOMB. You can get that for all of the services?

General BENADE. Yes.

(Clerks note: The information appears on page 591.)

NEED FOR PROGRAM

Mr. LIPSCOMB. Inasmuch as we do have Federal, State and local laws on the statute books, now, that should regulate or help this problem, why is it necessary to continually expand in this as a military effort? States now have civil rights or equal opportunity in housing commissions. The Federal Government has its commission. We do have rulings from the courts. Under all these, what I hope would be favorable conditions, why is it necessary for the military to expand its operation and take time, resources, funds, and personnel away from military responsibilities and functions?

General BENADE. I don't think it is a question of expansion. As I pointed out, the offices in which this program operates exist in any event and would exist in any event for the normal assistance that is provided to military families when they come to a new station. This is a convenience that is provided for the benefit of the serviceman.

I would also point out, sir, I think it should be kept in mind that the military—the Department of Defense in this case—were in the forefront in leading this movement to end discrimination against servicemen. While I am delighted to see the tremendous strides that have been made in legislation in this area, I think that the Department of Defense has gone considerably ahead because of their efforts over the past few years. I indicated earlier that we calculate that about 96 percent of the housing units near our military bases are now open without discrimination of any kind to the servicemen. What that figure might have been if we had not undertaken these efforts of the past few years, I don't know, sir, but I would hazard it would be considerably less.

Mr. LIPSCOMB. This is my point. Do you think if you took your personnel who are contributing their time and effort in this area and your funds that you are using in this area, if you took and applied these some place else, that discrimination in housing would begin around military bases again?

General BENADE. No, sir, I don't think that necessarily would follow.

NEED TO CONTINUE PROGRAM

Mr. LIPSCOMB. Why are you planning on expanding it then?

Mr. SIKES. When you are 96 percent complete on your job.

Mr. LIPSCOMB. This is what we are trying to get to.

General BENADE. My point is, I am not aware that we are expanding it. What we have done, as I understand it, is that as of November 1968, at all of the posts, we have simply passed the same directive that in all cases they will be sure there is no discrimination.

Mr. SIKES. You have said 96 percent of the housing is open to all personnel. That being the case, it would appear your job is substantially complete and that you can make reductions in the size of the operation rather than expand or hold at the same level. I am sure you don't want a lot of people sitting around saying, "We have finished our job, now we will read the paper for a year or two."

General BENADE. If I understand it correctly—and I hasten to say again we will furnish for the record the costs involved but, again, my understanding is that no new offices are being created for this. That is what I think is important. These housing offices already exist and they are a regular part of the post facilities.

Mr. SIKES. If the job is 96 percent complete, why can't they be reduced?

General BENADE. This discrimination aspect is only one part of the task. This was given to them as an additional job. The offices weren't created for this sole purpose. These particular housing offices we have always had.

RESPONSIBILITY OF HOUSING PROGRAM

Mr. SIKES. What are their other jobs?

General BENADE. In the main, sir, to keep track of all the housing that is available in the area and to keep track of the real estate market and availability. At our larger posts, where you have a flow in and out of literally thousands of people a month, many of them coming in for the first time, new and strange to an area, apart from any problems of discrimination, it is a useful thing to be of help to them in learning what is available and where they can go and what are the costs of the rentals and should they live here or there and there is a service given them regularly, sir.

Mr. SIKES. Thank you very much, gentlemen.

The committee will resume its hearings at 10 o'clock in the morning.

Tuesday, June 24, 1969

MANAGEMENT STUDIES

Mr. SIKES. The committee will come to order.

We will begin with management studies.

Mr. Secretary, will you insert in the record at this point the list of management and research studies which have been undertaken during fiscal years 1968, 1969 and those proposed for fiscal year 1970?

(The information follows:)

SUMMARY OF OSD CONTRACTS FOR MANAGEMENT AND RESEARCH SERVICES, FISCAL YEARS 1968, 1969, AND 1970

[In thousands of dollars]

	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
Assistant Secretary of Defense (I. & L.):			
Economic Research Council.....	122	131	122
Logistics Management Institute.....	1,108	1,279	1,300
Harbridge House.....	112	112	
Study of DOD properties.....			150
Subtotal.....	1,142	1,322	1,372
Assistant Secretary of Defense (M. & R.A.):			
Joseph Froggatt & Co., Inc.....	117	115	117
Manpower management studies.....	906	1,300	1,500
Subtotal.....	923	1,315	1,517
Assistant Secretary of Defense (Administration): Space layouts for Forrester Building.....			
		150	
Assistant Secretary of Defense (Comptroller): Utilization of new computer technology.....			
		1,530	
Assistant Secretary of Defense (ISA):			
Arms control studies.....	154	250	300
IDA.....	409	450	500
RAND.....	1,267	1,200	1,200
Other policy planning studies.....	22	50	150
Subtotal.....	1,852	1,950	2,150
Director of Defense Research and engineering:			
Weapons systems evaluation group.....	4,043	4,737	4,800
Criteria for releasing U.S. equipment to foreign countries.....			125
Battelle Memorial Institute.....	149		
Subtotal.....	4,092	4,737	4,825
Assistant Secretary of Defense (SA):			
Military-economic studies.....	375	350	400
Force effectiveness studies.....	76	307	380
Mathematical models.....	451	505	430
Cost analysis studies.....	223	238	290
Subtotal.....	1,125	1,400	1,500
Total, management studies.....	1,208	2,917	1,414
Total, research and management studies.....	9,134	12,304	11,364

† Management studies.

1970 PROGRAM

Mr. SIKES. For "Management Studies" during fiscal year 1970 you are requesting \$1,414,000. After deducting those not to be continued in the fiscal year 1970, there was a resultant increase of \$27,000 for studies. What is the general purpose of the increase?

Mr. FROEHLKE. The total is \$1,414,000 as you indicated, Mr. Chairman.

In our area of installation and logistics, we have the one large item of \$1,300,000 for "Logistics Management Institute." That is carryover.

We have \$22,000 for the "Economic Research Council" which is an entity we use when we are closing military installations, to make the closing as painless as possible on the local community.

We have \$50,000 for a study on encroachment. A study in an area other than the west coast and the Northeast.

In the Manpower and Research Affairs area, we have the consulting actuaries of Joseph Froggatt & Co. looking into the status of life insurance companies who desire to sell to our troops on bases and overseas. There is an increase of \$2,000 this year. Last year it was 15; this year it is \$17,000.

Then, lastly, in D.D.R. & E., we have a study for criteria for releasing equipment to foreign countries, for \$25,000.

DIFFERENCE BETWEEN RESEARCH AND MANAGEMENT STUDIES

Mr. SIKES. For both "Research Services and Management Studies" you are requesting \$11,364,000. Why is there a differentiation between the types of studies, between research and management studies?

Mr. FROEHLKE. Strictly organizational. My area is in organization and management. This is in the area of research, primarily in the weapons area, but it also goes more into research than management.

Mr. SIKES. Will you explain the reasons for the increase in 1970? First, tell me in more detail how you differentiate between the different types of studies. You just touched on that.

Mr. FROEHLKE. Some of these are admittedly close. I would differentiate between research and development and operational studies. In the former we conduct basic research. This is contrasted to the Economic Research Council, which we use when we are withdrawing from a specific base. We want to make the withdrawal as painless as possible today and tomorrow on the community. Another operational study is LMI's studying today how we can improve procurement and logistics. Encroachment is still another operational problem that exists today for which we are conducting a study.

One is an operational study; the other is more of a research study.

ECONOMIC IMPACT STUDIES

Mr. SIKES. Do I recall correctly that the military economics studies shown under Assistant Secretary of Defense for Systems Analysis was listed not long ago as an economic impact study? Is that correct?

Mr. FROEHLKE. I will have to refer that to Mr. Cooke.

Mr. COOKE. I don't know the answer to that, Mr. Chairman. It has been under the R.D.T. & E. funding in fiscal year 1969 and 1968.

Mr. SIKES. A few years ago we had a discussion with the Secretary for systems analysis regarding these economic impact studies. The committee now desires to determine if there is any difference between your terminology, "Military Economic Studies" and the "Economic Impact Studies" that we discussed a few years ago. Is this just a matter of switching of funding or is it a different type of study entirely?

Mr. FROEHLKE. My reaction is they are entirely different. I might like to correct the record. The Economic Research Study that we are doing in my budget refers strictly to the impact on the local community when a base is closed.

I expect that the study under Systems Analysis is a far more detailed study of a general nature.

FUNDING OF STUDIES

Mr. SIKES. Are all the management studies to be financed from O. & M. appropriations?

Mr. FROEHLKE. All of the \$1,414,000; yes, sir.

Mr. SIKES. Where will the rest of it be funded?

Mr. FROEHLKE. In the R.D.T. & E. budget.

Mr. SIKES. How do you decide what appropriation will finance the studies?

Mr. FROEHLKE. Again, attempting to determine, if it is an operational study—by looking at the nature and the scope of the study. If it is operational—very specific—we would apply it to operation and maintenance. If it is a basic research study, it would be in the R.D.T. & E. budget.

ADP STUDIES

Mr. SIKES. I noted you are not requesting funds in fiscal 1970 to study utilization of new computer technology. We discussed this with the Comptroller and his representatives when they were here last week. The study was overfunded last year and, as a result, most of the funds were reprogramed. We are now interested in finding out whether or not the increase in central services for additional use of computer services includes any of the money which would have been normally financed under this study?

Mr. COOKE. Mr. Chairman, the program in line with the one discussed last year is essentially in normal ADP support. There are some funds for that effort in the full text retrieval system—\$200,000 under our central services account. There is also \$300,000 in the DCA budget in the NMCS Support Center for Data Management Systems.

Some of the other efforts, similar efforts, are being undertaken by the Air Force Data Services Center with no fiscal year 1970 funds required. So, to the extent we are carrying on the program, we are carrying it on in normal computer services reports as part of the funds in the central services budget, and part of the funds in the DCA budget.

Mr. SIKES. Will the Air Force fund your portion of the effort that they are carrying out for you with regard to the Office, Secretary of Defense facilities?

Mr. COOKE. To the extent the Air Force provides computer service to the Office of the Secretary of Defense activities, it is a reimbursable item. For example, the "Full Text Retrieval" of \$200,000 included in the OSD budget would be a reimbursable item to the Air Force for the services that the Air Force Data Services Center provides for that program.

STUDY OF SPACE LAYOUT OF FORRESTAL BUILDING

Mr. SIKES. Last year there was considerable criticism leveled at a study of the space layout of the Forrestal Building. Nevertheless, the Department has gone ahead with that study at a cost of \$50,000. Why was that done?

Mr. COOKE. Mr. Chairman, we did not use the \$50,000 that was in the budget last year.

Mr. SIKES. In the study provided the committee, it indicates that for the Assistant Secretary of Defense, Administration, the space layout

for the Forrestal Building, \$50,000. The original and revised amounts are the same for fiscal year 1969.

Mr. FISHER. So far we have not entered into an additional contract on the layout of the Forrestal Building. We are close to the end of the fiscal year and the \$50,000 will become a savings.

HARBRIDGE HOUSE STUDY

Mr. SIKES. In fiscal year 1969 you undertook the Harbridge House study, which had not been proposed at the time of your hearings. What is the purpose of this study?

Mr. FROEHLKE. May I supply this for the record, Mr. Chairman?

Mr. SIKES. All right.

(The information follows:)

This study will analyze problems encountered in secondary item stratification in the DOD. These are components of major systems.

The inventory stratification process provides for the accumulation, extraction, and display of basic supply data, for the approximately 3.5 million secondary items in the Defense supply systems, in a manner that uniformly relates assets to requirements. By arranging the data in various formats, we are able to measure supply system readiness, prepare personal property reports to Congress, formulate procurement budgets, and make retention and transfer decisions.

We contracted for the assistance of Harbridge House in obtaining uniform implementation of this process in order to benefit from the expert knowledge they had developed as a result of prior work with the Army in this same field.

ENCROACHMENT STUDIES

Mr. SIKES. In 1970 we note you are going to undertake a study of DOD properties. Is the same type study being carried out by the Department of the Navy as executive agent for the Department of Defense, of encroachment on and utilization of defense properties and facilities?

Mr. FROEHLKE. It is a comparable study for a different area of the country, Mr. Chairman.

Mr. SIKES. Tell us more about the study.

Mr. FROEHLKE. The so-called WIRE study formerly included just southern California. It is now expanded to include the west coast. It will look, long range, at the encroachment problem at various bases on the west coast. It will determine basically two things: How much land—in the middle and late seventies and early eighties—will the military installations need, and how much land will the surrounding civilian communities need?

Mr. SIKES. Is this the same program discussed with the committee by Secretary Shillito?

Mr. FROEHLKE. I presume it was; yes.

Mr. SIKES. There are not two studies; there is one study, is that correct?

Mr. FROEHLKE. There is the WIRE study, which is in the Navy's budget. That is the \$800,000 of which you spoke, and then there is the \$50,000 in Secretary Shillito's budget which will study similar problems, but in different geographical locations.

Mr. SIKES. In the funding for this study here, is this the same as we discussed with Secretary Shillito last week, or is this an additional amount of money?

Mr. FROEHLKE. I wasn't here, but I am sure it is the same. I am now explaining Secretary Shillito's budget, so I am confident it is the same.

STUDY OF CRITERIA FOR RELEASING U.S. EQUIPMENT TO FOREIGN COUNTRIES

Mr. SIKES. You are also going to undertake in 1970 a study of criteria for releasing U.S. equipment to foreign countries. We have been doing this for a long time and presumably there is a criteria. What will this study accomplish?

Mr. FROEHLKE. This is the study I referred to earlier, Mr. Chairman. It is of a restricted nature. I am going to briefly comment, and then if anybody has something more specific, I will give them a little time.

This is an effort on the part of D.D.R. & E., in a sensible and logical way, to computerize the criteria. You are correct, we have been doing it for many years. This is an attempt to have the criteria available more quickly and logically.

Mr. COOKE. Mr. Chairman, there is going to be particular effort placed on inertial navigation equipment, to examine the capability of such components and systems, both United States manufactured and others. Parts of these systems in themselves may be unclassified, but when you add them all together, they may give a substantial technical capability to foreign purchasers. It is in this particular area of inertial guidance where much of the initial effort will lie.

LMI STUDIES

Mr. SIKES. I would like to have a list of studies undertaken by the Logistics Management Institute during the fiscal years 1968 and 1969 and those proposed for 1970.

Mr. FROEHLKE. We will supply them, sir.
(The information follows:)

Tasks assigned to the Logistics Management Institute by the Assistant Secretary of Defense (Installations and Logistics):

Fiscal year 1968:

Task 68-1—Defense and commercial pilot procurement, training and career systems:

Assigned, July 5, 1967.

Completed, September 1, 1968.

Task 68-2—Contractor support of fixed and rotary wing aircraft weapon systems:

Assigned, July 6, 1967.

Completed, May 1, 1968.

Task 68-3—Investigate the utilization of numerically controlled machine tools in DOD:

Assigned, July 6, 1967.

Completed, August 7, 1967.

Task 68-4—Adjustments of depot level inventory records:

Assigned, September 28, 1967.

Completed, September 5, 1968.

Task 68-5—Department of Defense military exchanges:

Assigned, October 5, 1967.

Completed, July 31, 1968.

Task 68-6—Guidelines for making repair expenditure decisions:

Assigned, October 24, 1967.

Completed, November 22, 1968.

Task 68-7—DOD review of major automated logistics systems:

Assigned, January 12, 1968.

Completed, October 21, 1968.

- Task 68-8—Condition and operation of DOD ordnance production facilities:**
Assigned, January 11, 1968.
Completed, June 7, 1968.
- Task 68-9—Reconnaissance of Navy ship overhaul program:**
Assigned, January 18, 1968.
Completed, December 20, 1968.
- Task 68-10—Negotiated profit objectives considering capital employed:**
Assigned, January 30, 1968.
Completed, January 9, 1969.
- Task 68-11—Plan for 1968 Defense-Industry cost reduction workshops:**
Assigned, February 23, 1968.
Completed, April 2, 1968.
- Task 68-12—Procurement pricing plans (continued from task 67-14):**
Assigned, March 21, 1968.
Completed, May 10, 1968.
- Task 68-13—A manager's guide to the acquisition of DOD systems and equipment:**
Assigned, April 12, 1968.
Completed, February 3, 1969.
- Task 68-14—A DOD systems and equipment production planning guide:**
Assigned, April 12, 1968.
Completed, February 27, 1969.
- Task 68-15—DOD contract management conference:**
Assigned, May 1, 1968.
Completed, October 4, 1968.
- Task 68-16—Contractor motivation-reconnaissance:**
Assigned, May 13, 1968.
Completed, June 28, 1968.
- Task 68-17—The contract audit/contract administration interface:**
Assigned, May 13, 1968.
Completed, March 10, 1969.
- Task 68-18—Workload forecasting and alternative overhaul schedules for Navy aircraft and aircraft engines:**
Assigned, June 25, 1968.
Completed, January 31, 1969.
- Task 68-19—Condition and operation of DOD ammunition production facilities, phase II:**
Assigned, June 26, 1968.
Scheduled for completion, November 1, 1969.

Fiscal Year 1969:

- Task 69-1—Defense industry profit review:**
Assigned, July 29, 1968.
Completed, April 3, 1969.
- Task 69-2—Contractor performance evaluation for use in selection of major weapon systems:**
Assigned, July 29, 1968.
Completed, October 23, 1968.
- Task 69-3—Structuring life cycle cost procurements:**
Assigned, August 14, 1968.
Scheduled for completion, June 30, 1969.
- Task 69-4—Department of Defense commissary stores:**
Assigned, August 27, 1968.
Scheduled for completion, May 15, 1969.
- Task 69-5—Reconnaissance study, subsistence management:**
Assigned, September 16, 1968.
Scheduled for completion, May 15, 1969.
- Task 69-6—Late delivery of components in new construction and conversion, Navy ship programs:**
Assigned, October 3, 1968.
Scheduled for completion, May 15, 1969.
- Task 69-7—Contractor support of the Safeguard system:**
Assigned, October 11, 1968.
Scheduled for completion, April 1, 1970.
- Task 69-8—Inventory control of Army noncombat essential items:**
Assigned, December 3, 1968.
Scheduled for completion, December 31, 1969.

- Task 60-9—Reconnaissance study of service contract methodology :**
Assigned, December 5, 1968.
Scheduled for completion, April 30, 1969.
- Task 60-10—Life cycle costing in system acquisition :**
Assigned, December 17, 1968.
Scheduled for completion, June 30, 1969.
- Task 60-11—Methods to reduce the out-of-service pipeline of naval aircraft :**
Assigned, January 6, 1969.
Scheduled for completion, September 15, 1969.
- Task 60-12—A pilot system to improve prediction parameters at a naval air rework facility and to compare plans with performance :**
Assigned, January 6, 1968.
Scheduled for completion, September 15, 1969.
- Task 60-13—A pilot system to develop alternative overhaul schedules :**
Assigned, January 6, 1969.
Scheduled for completion, December 31, 1969.
- Task 60-14—Implementation plan for the naval air industrial management information system :**
Assigned, January 6, 1969.
Scheduled for completion, December 31, 1969.
- Task 60-15—Military exchange facilities funding practices :**
Assigned, January 13, 1969.
Scheduled for completion, June 30, 1969.
- Task 60-16—Coordination of project manager and support policies on inventory management and maintenance :**
Assigned, January 27, 1969.
Scheduled for completion, September 30, 1970.
- Task 60-17—Preparation of study plan for contractor performance evaluation (CPE) program :**
Assigned, February 3, 1969.
Scheduled for completion, May 30, 1969.
- Task 60-18—Management structure for acquisition of the SANGUINE system :**
Assigned, February 1, 1969.
Schedule for completion, August 29, 1969.
- Task 60-19—Study of Navy ship maintenance program :**
Assigned, March 6, 1969.
Scheduled for completion, November 6, 1969.
- Task 60-20—Reconnaissance study—Logistics and financial impact of changes in weapon system program plans :**
Assigned, March 14, 1969.
Scheduled for completion, September 30, 1969.
- Task 60-21—DoD contractor relationship—Preliminary review :**
Assigned, March 14, 1969,
Scheduled for completion, September 30, 1969.
- Task 60-22—Recommended studies by the Joint Logistics Review Board :**
Assigned, March 14, 1969. (This is an in-house task.)
- Task 60-23—Retention of military personnel :**
Assigned : April 7, 1969.
Scheduled for completion, July 15, 1969.
- Task 60-24—Processing return of unserviceable aviation equipment or components :**
Assigned, April 30, 1969.
Scheduled for completion, February 27, 1970.
- Task 60-25—Methods for the accomplishment of integrated logistics support :**
Assigned, June 11, 1969.
Scheduled for completion, March 11, 1970.
- Task 60-26—Study DoD international personal property moving and storage program :**
Assigned, June 11, 1969.
Scheduled for completion, December 11, 1969.
- Task 60-27—Defense industry profit review :**
Assigned, June 19, 1969.
Scheduled for completion, December 31, 1969.
- Task 60-28—Preparation of a project management guide :**
Assigned : June 24, 1969.
Scheduled for completion, December 31, 1970.

The following tasks are under consideration for assignment to LMI in fiscal year 1969 or fiscal year 1970 as current tasks are completed, thus making staff available:

- OSD safety stock and order quantity policy;
- Optimum information for inventory managers;
- DOD telecommunications-reconnaissance;
- Criteria and methodology for source selection;
- Alternative methods of weapon system acquisition;
- Interfaces between contract administration service functions and those performed by systems or project offices in contractor plants;
- Logistics planning concept for industrial support of limited war;
- Logistics guidance;
- Analytical techniques for evaluating logistics support alternatives;
- Methods for analysis of scheduling and delays in ship construction;
- Control of cost increases in major weapon system acquisition; and
- Plan for mobility support forces studies.

It will also be noted that more tasks have been assigned this year than were assigned during fiscal year 1968. Several of these new tasks will extend well into fiscal year 1970.

As of April 1969, task 67-6, inventory management of navy aircraft engines, assigned to LMI in fiscal year 1967, was still underway and is now scheduled for completion on August 15, 1969.

STUDY OF EXCHANGE OPERATIONS

Mr. SIKES. What will you do with the information that has been provided by the several studies of the Army, Air Force and Navy exchange operations?

General BENADE. The studies have been received. One was on the exchange systems and one on the commissary systems. The exchange systems study was received the latter part of last summer. It has been disseminated to the military departments and it is under intensive study in the departments as well as within the Office of the Secretary of Defense. Each of the major recommendations of the study is under review to determine feasibility for implementation and what would be required to carry the recommendations out.

Mr. SIKES. Is there an indication that there will be changes in these programs as a result of the studies?

General BENADE. Yes, sir. In many of the areas they recommended, common policies, common procedures and so forth, the services already are moving in that direction.

Mr. SIKES. Provide for the record a summary of the recommendations that are under consideration and the prospect for their implementation.

(The information follows:)

LMI RECOMMENDATIONS ON EXCHANGES

The following is a summary of the functional areas in which the Logistics Management Institute has recommended the development of common policies and procedures within and between the several military exchange systems and the specific subfunctional areas in which the exchange systems have indicated improvements can and will be made.

PROCUREMENT

- Joint participation in merchandise clinics;
- Development and use of joint negotiated price agreement bulletins;
- Development of joint procurements under competitively bid contracts;
- Development of standardized procedures for equipment procurements; and
- Development jointly of small business procurement sources.

PRICING

Development of uniform retail markup guides ; and
Development of uniform personal services pricing in geographic area.

INVENTORY MANAGEMENT

Standardization of stock assortments and structures ;
Standardization of item coding and supplier coding for compatible EDP applications ; and
Standardization of retail departmentalization.

QUALITY ASSURANCE

Development of applicable uniform standards ;
Sharing of testing facilities and test results ; and
Development of joint supplier quality performance files.

PHYSICAL DISTRIBUTION

Development of uniform distribution patterns for same or similar categories of merchandise ;
Development of standards for warehouse construction and improvement ; and
Sharing of traffic and transportation management information.

FINANCIAL MANAGEMENT

Development of maximum feasible uniformity in financial statements and charts of account ;
Development and application of standard invoice discounting practices ; and
Development of standard auditing and control procedures.

EDP

Sharing of EDP system development information ; and
Development of equipment (hardware) standards and maximum feasible common programs (software).

FACILITIES

Development of uniform planning hypotheses and projections ; and
Development of standard space criteria for physical facilities.

RETAIL, FOOD, SERVICES, AND CONCESSIONS

Development of uniform operational policies and procedures ; and
Development of common policies regarding direct operations vis-a-vis concession operations.

PERSONNEL

Development of standards pertaining to salaries, wages and benefits for civilian employees ; and
Development of standard policies and procedures governing selection, hiring, transfer and termination of civilian employees.

Some of the foregoing improvements have already been achieved ; some are being undertaken now ; still others will have to be deferred until personnel are available to work out the related problems. The military services have assigned the implementation of these tasks as a priority responsibility of their Armed Forces Exchange Coordinating Committee.

OFFICE OF SYSTEMS ANALYSIS

Mr. SIKES. On operations within Office of Systems Analysis, are there any operational changes contemplated within this operation ?

Mr. FROEHLKE. I am aware, Mr. Chairman, that there has been much discussion, about the operation of the Office of Systems Analysis. I was present when the Secretary of Defense had his hearing before the

Senate Armed Services Committee where he indicated that he also was aware of discussions involving the operations of systems analysis. At that time he indicated that he thought the major problem area was that systems analysis was getting into decisionmaking rather than evaluation and analyzing. He made it very clear then, and I concur with him, that the systems analysis function is a vitally important function in the management of the Department of Defense.

The problem that we have, he believes, and I concur, is that Systems Analysis in the past perhaps has wandered a little far afield into decisionmaking, rather than confining itself to evaluation and analysis.

This will be one of the questions, Mr. Chairman, which certainly will be considered by the Blue Ribbon Panel and I anticipate they will have some thoughts on the subject.

CONTROL OF STUDIES

Mr. SIKES. I realize a certain amount of this type of activity must go on. You must explore the need for and the opportunities offered by the change. Yet there is always the question of the amount, the volume of studies that can be justified in order to produce a contribution and not simply clutter up the desk of those who are engaged in them. We don't want to get into situations where we are just making mud pies and don't really contribute anything, but keep everybody busy. How do you establish a proper level for studies of this nature? The proper number, the proper area?

Mr. FROEHLKE. Mr. Chairman, I don't believe there is a hard and fast rule where we can assure you that we will hit the exact number. I believe this involves management judgment, that we don't overdo the studies but by the same token don't underdo them. I would hate to categorize. One is horribly expensive and the other could lead to great inefficiency. Perhaps it isn't a satisfactory answer, but I believe the only answer is sound management.

STAFFING OF SYSTEMS ANALYSIS

Mr. DAVIS. Who is in charge of that office?

Mr. FROEHLKE. Dr. Ivan Selin.

Mr. DAVIS. How many people, military and civilian, does he have?

Mr. FROEHLKE. He has 118 civilians. He is authorized 134. He is authorized 61 military people. He is Acting Assistant Secretary.

OPERATION OF SYSTEMS ANALYSIS

Mr. DAVIS. It seems to me we have a whole raft of offices. Some of them we call Data Analysis and some of them Data Processing and so on. How does the Systems Analysis correlate with these other offices that we have been talking about?

Mr. FROEHLKE. In theory, Systems Analysis should be the right arm of the Deputy Secretary and the Secretary in analyzing the decisions made by all of the other functions of OSD, as well as the military services.

As a result, he must have experts in his department who have the necessary educational and technical background to be able to analyze

and evaluate the decisions and the operations of the three military services, as well as the other offices of the Office, Secretary of Defense.

Mr. DAVIS. Do they rely upon the services themselves for their support work and their reporting to them then? They do not have any independent sources of material with which they work?

Mr. FROEHLKE. They have some capability for independently doing research. They also work with the various services as they analyze and evaluate.

Mr. DAVIS. And depend upon them primarily for their data support.

Mr. FROEHLKE. That is correct.

Mr. DAVIS. Is this primarily then what you might call the right arm of the Secretary and the Deputy Secretary, a decisionmaking organization?

Mr. FROEHLKE. Definitely not. The Secretary and the Deputy Secretary make the decision. It is the right arm from the standpoint of analyzing the various factors which the Deputy Secretary and Secretary will have to take into consideration in making that decision. The decisionmaking process should not be delegated and to my knowledge is not delegated.

Mr. SIKES. Primarily, what do they do, prepare and submit reports to the Secretary and Deputy Secretary?

Mr. FROEHLKE. Prepare and submit reports of an analytical nature.

Mr. SIKES. They do not become involved in the budgetmaking process except insofar as they might provide some of the operational decisions upon which a budget would have to be based. That is as far as they would go? They don't fit in the actual dollars?

Mr. FROEHLKE. No.

SOCIAL PROGRAMS

CONTRACT COMPLIANCE

Mr. SIKES. Under social programs how many employees are now involved in your enforcement of contract compliance operation regarding nondiscrimination?

Mr. FROEHLKE. I will refer that to General Benade.

General BENADE. Would you repeat the question, please?

Mr. SIKES. How many employees are now involved in the enforcement of contract compliance operation regarding nondiscrimination?

General BENADE. I would have to furnish that for the record.

Mr. SIKES. Do you know the total cost of the operation?

General BENADE. No, sir; I will have to furnish it for the record.

(The information follows:)

DOD CONTRACTS COMPLIANCE OFFICE (DEFENSE SUPPLY AGENCY)

	Employees			Funding
	Total	Professional	Clerical	
Fiscal year 1968.....	146	110	36	\$1,744,000
Fiscal year 1969, projected.....	149	110	39	2,269,000
Fiscal year 1970, projected.....	229	170	59	2,986,000

PROJECT 100,000

Mr. SIKES. Who can bring us up to date on the accomplishments within Project 100,000?

Mr. FROEHLKE. I will make a comment or two.

Project 100,000 is the project instituted to bring in each year approximately 100,000 additional men into the armed services who previously were not eligible for service because of mental or physical handicaps.

In our budget for 1970, we have asked for \$18,954,000 to carry on this project. The incidental side benefit of Project 100,000 is to make more productive citizens out of these individuals who are allowed to serve in the military forces. The primary reason for Project 100,000 is to have 100,000 additional men available for service in the Armed Forces yearly.

Mr. SIKES. This a good objective. Tell us what success you've had. How long has the program been in operation? How many men have actually been inducted under this program who otherwise would not have been indicated?

Mr. FROEHLKE. 232,000 comes to mind. The first 32 months of 100,000, we accepted 212,849.

Mr. SIKES. You are close to target.

Mr. FROEHLKE. Yes. At a cost per man of approximately \$206 in 1970.

RESULTS OF PROJECT 100,000

Mr. SIKES. What is the result insofar as the product is concerned? Can you determine at this time what the actual success has been? Success is not going to be measured in the number you can recruit under this program, but in a useful product to the military and to society.

Mr. FROEHLKE. The performance of Project 100,000 obviously is going to vary by service. Ninety-five percent of those accepted complete basic training. Men with severe reading limitations are given remedial education before or during basic training and about 80 percent of those improve, and the reading gains average 1.8 of the elementary grades.

In the formal-skill courses, 90 percent graduate. Sixty percent are assigned to noncombat specialties.

Mr. SIKES. Why is that? Is that on a par with other inductees?

Mr. FROEHLKE. Yes.

After 19 to 21 months' service, 52 percent are in Grade E-4 and above. Ninety percent receive supervisory evaluation in the "Good," "Excellent," and "Outstanding" class. The rest are graded as unsatisfactory or fair, which I am told is about in line with the normal inductee.

Mr. SIKES. How about disciplinary problems? Do you have more disciplinary problems with this group?

Mr. FROEHLKE. I am not aware of any. The attempt is not to hold them apart and separate, so to a certain extent the day-to-day disciplinary problems, if there were any, would be lost, as they should be. They are not held separately.

COST OF PROJECT 100,000

Mr. SIKES. I would like to have for the record a schedule of the cost of this program for all services, for fiscal 1968 and 1969 and estimated 1970.

Mr. FROEHLKE. We will supply it, sir.
(The information follows:)

COST OF PROJECT ONE HUNDRED THOUSAND

Separate cost accounts are not maintained for Project One Hundred Thousand men because they are trained in our regular training centers and schools along with all other men. They are given extra help only when necessary.

The military services have estimated their costs for operating Project One Hundred Thousand as follows:

(Dollars in thousands)

	Fiscal year 1968	Fiscal year 1969	Fiscal year 1970
Army.....	5,144	11,117	12,776
Navy.....	2,316	2,438	2,444
Marine Corps.....	65	60	60
Air Force.....	2,592	3,147	3,159
OSD.....	538	533	515
Total.....	10,655	17,285	18,954

The costs include:

1. *Additional training costs.*—Extra costs incurred in training Project One Hundred Thousand men in comparison to other men. These costs take into consideration training attrition rates and extra training time.

2. *Medically remedial costs.*—Includes hospitalization and convalescence costs for surgical cases and physical conditioning costs for weight cases. Also includes costs for noneffective time.

3. *Procurement costs.*—Army costs of operating the Armed Forces Examining and Entrance Station (AFEES) in processing Project One Hundred Thousand men over and above the cost of inducting or enlisting other men.

4. *Remedial reading.*—Army, Navy, and Air Force costs for providing reading training for those with severe reading limitations.

5. *Data processing.*—Costs of maintaining the name-by-name file on the characteristics and performance of Project One Hundred Thousand men, plus other reports.

6. *Research and development.*—Costs of research on improved methods for selection, assignment, and training of lower-mental category personnel. Includes research projects funded by the military services and OSD.

7. *Administration.*—Includes the personnel costs of managing the program at the departmental or major command level of the military services and Office of Secretary of Defense.

8. *Other costs.*—Includes costs to the U.S. Armed Forces Institute for academic achievement tests administered to Project One Hundred Thousand men and the procurement of educational materials for use in remedial reading.

Based on the costs above, the extra cost per individual for Project One Hundred Thousand men entering the service is estimated to be:

Fiscal year 1968.....	\$124
Fiscal year 1969.....	188
Fiscal year 1970.....	206

The strength of the Armed Forces was not increased for Project One Hundred Thousand. The Department of Defense accepts these men in lieu of other men with higher mental and physical qualifications. Most Project One Hundred Thousand men complete their training on schedule. The extra costs are primarily for those who need extra attention or are separated from the service early in their initial training.

TRAINING QUOTA

Mr. RHODES. If I have the figures correctly, Mr. Secretary, you have far exceeded your quota. Are the figures correct? Is 212,000 brought into Project One Hundred Thousand?

Mr. FROEHLKE. Yes, over a 32-months' period.

Mr. RHODES. So your level of output is about what you expected?

Mr. FROEHLKE. Yes, sir; that is my understanding.

PROJECT VALUE

Mr. SIKES. Will you have jurisdiction over the effort to bring hard core unemployables, people who normally are unable to get jobs; into the service? Do you have that program under "Social programs?"

Mr. FROEHLKE. I have it inasmuch as it is in Secretary Kelley's jurisdiction. The program is called Value.

It operates in conjunction with the Department of Labor. We work for a 9 months' period with the underprivileged, in an attempt to, after the 9 months' period, make them available as civilian employees working for the Department of Defense.

Mr. SIKES. This is part of Project Value?

Mr. FROEHLKE. Yes. The Department of Defense provides the sites and counselors in the various military services. This year I believe we intend to find approximately 5,000 people; 5,600 trainees.

Mr. SIKES. How long has this program been in operation?

Mr. FROEHLKE. I don't know when it started. Based on civilian activity—and this is comparable to what large industry is expected to do—I would guess that it was around fiscal year 1968.

Mr. COOKE. It was approved in 1968 and got going during this fiscal year and will enlarge a little through our intended input of \$5,600 at various geographic locations during fiscal year 1970.

(The information follows:)

Project Value is a joint Labor Department-DOD program. The Department of Labor funds the program as part of its concentrated employment program to train hard-core unemployed young men and women for productive employment. The Department of Defense does not pay the salaries or expenses of these enrollees.

The way the program operates is that the enrollee is placed on the rolls of the local manpower agency for up to 9 months in a program of remedial education and onsite training.

Remedial education is provided by the local manpower sponsor, DOD installations provide only the work sites, supervision, and counseling. Supervision and counseling of enrollees involve some minor expenditure of funds; counterbalancing this is the fact that the trainees do perform useful work for the Department during their on-the-job training. If the trainee successfully completes the program and passes a civil service examination, he is hired by the DOD installation in a vacancy for which he qualifies. The planned 5,600 trainees will be spread through 41 areas in which DOD employees exceed 500,000 and at which an estimated 125,000 entry-level jobs exist. The projected vacancies toward which the trainees are targeted are normal vacancies which result from turnover (about 25 percent) in these 125,000 entry level positions, such as helpers in the crafts and trades.

The objective of the program is for the Department of Defense, as a large employer, to cooperate in much the same manner as do private employers in programs supported by Department of Labor funds to provide job training and job opportunities for disadvantaged young men and women.

Project Value is a project under the concentrated employment program. The statutory authority for the concentrated employment program is section 123(a)(5) of the Economic Opportunity Act, as amended, 42 U.S.C. 2740

(a) (5) and section 231 of the Manpower and Development Training Act, 42 U.S.C. 2601.

Federal agencies may serve as host employers for programs initiated pursuant to these acts. Section 123(a) (5) of the Economic Opportunity Act provides that the programs will be initiated with the cooperation of "private and public employers."

EMPLOYMENT STATUS

Mr. SIKES. Are these people employed as civilian employees by the Department of Defense?

Mr. FROEHLKE. Yes, sir, after the 9 months' training. This is basically a Department of Labor program with which we are cooperating.

Mr. SIKES. These people who are taken in under this project, are they civil servants at that time?

Mr. FROEHLKE. Yes, although there is a 9 months' period when I believe they are not. That is when they in effect are under the jurisdiction of the Department of Labor. They are paid by the Department of Labor. If they prove to be acceptable, then after the training period they become workers for the Department of Defense.

Mr. COOKE. That is assuming they do pass the civil service exam at the end of the 9 months.

Mr. RHODES. Do these people have anything to do with the Job Corps?

Mr. FROEHLKE. No. They are working with the Department of Defense. They are on our property with our counselors. We provide the counselors, although the training program is under the jurisdiction of the Department of Labor.

FINANCING OF PROGRAM

Mr. RHODES. The financing comes through from the appropriations of the Department of Defense.

Mr. FROEHLKE. It is joint financing. During that 9-month period the pay for these workers is not in the Department of Defense. That would be under the Department of Labor.

The financing, a portion would be for the property, whatever portion that might be, and the most important item would be counselors.

DEFENSE PARTICIPATION IN VALUE

Mr. RHODES. Why is the Department of Defense engaged in carrying out this project? What is the rationale?

Mr. FROEHLKE. The rationale is that the Department of Defense is one of the biggest employers in this country and all major employers are being asked to cooperate in this effort. It appears to me it would be inadvisable for the biggest employer in Government not to cooperate, if we expect other civilian agencies to cooperate.

Mr. COOKE. May I add, sir, what we are talking about is the helpers and crafts and trades at a rather low level where there are about 125,000 entry level positions in the Department each year. The turnover is 25 percent a year. So, if they can be adequately trained, they represent a good source of recruitment for that type position.

Mr. RHODES. How many men have you run through this project thus far?

Mr. FROEHLKE. We hope to have approximately 5,600 this year and I believe it was a comparable amount last year; is that correct?

Mr. COOKE. We have some 1,700 in the project countrywide at this time and we hope to build up to the number indicated by Secretary Froehlke.

Mr. RHODES. Do you intend to expand it in future years? Do you have any projection?

Mr. FROEHLKE. We have no projection.

MANPOWER STUDIES

Mr. RHODES. Can you advise us as to the intent of some of the studies which are being carried out by the Department such as the military service experience of youth in inner-city urban area and the minority group testing?

These latter two are funded with R.D.T. & E. money, but I would like to find out what is involved in these projects. Would you supply that for the record?

Mr. FROEHLKE. We will supply it for the record.

(The information follows:)

THE EFFECTS OF MILITARY SERVICE ON YOUNG MEN FROM DEPRESSED URBAN AREAS

This contract was led on June 26, 1969, for \$152,073 to the Survey Research Center, University of Michigan. The study is jointly funded and managed by three agencies, Defense, Labor, and Veterans' Administration. Primary objective of the study is to assess the effects of military service on young men from depressed areas of a major metropolitan area. Comparisons will be made between groups of men with and without military service.

RESEARCH ON MINORITY GROUP TESTING ; DEVELOPMENT OF SELECTION INSTRUMENTS FOR OFFICER AND ENLISTED PROGRAMS

The Naval Personnel Research Activity, San Diego, Calif., was provided \$85,000 on April 21, 1969, for this research study. Research will be performed to determine whether or not new types of tests can be developed appropriate for minority group applicants to enlisted and officer programs in the armed services.

COST OF SOCIAL PROGRAMS

Mr. RHODES. Will you insert in the record a schedule showing the total amount for all the various social programs being carried out by the Department of Defense for fiscal years 1968, 1969, and the estimate for 1969?

Mr. FROEHLKE. Yes, sir.

(The information follows:)

SOCIAL PROGRAMS—DEPARTMENT OF DEFENSE OBLIGATIONS

(In thousands of dollars)

	Actual, Fiscal year 1968	Estimated	
		Fiscal year 1969	Fiscal year 1970
Project Referral.....		360	1,152
Project Transition ¹	7,022	15,289	17,958
Project 100,000.....	10,655	17,285	18,954
Project value.....		528	807
Manpower studies (R.D.T. & E.) (Includes youth in inner-city urban area and minority group testing).....		153	85
Total.....	17,677	33,615	38,956

¹ Includes funds from O. & M., military personnel and R.D.T. & E. appropriations.

PROJECT TRANSITION

Mr. RHODES. Is Project Transition serving the basic purposes for which intended?

Mr. FROEHLKE. Yes. In my opinion, based on this relatively short period of time, it is. As you know, the purpose of Project Transition is to provide during the last 6 months the individual is in the service, counseling, vocational skill training, high school training if he does not have that, and a job-referral service.

Many of these responsibilities regular employers would do even though they are leaving the employment of the concern. However, in my opinion Government has a greater responsibility over and above the normal employer-employee relationship because it is in the interests of the Government that these servicemen, when they go out into civilian life, do become good taxpaying citizens.

Each year about 900,000 enlisted men return to civilian life from the service. About 60,000 have already received this training. Training is given at no cost to the Department of Defense. Costs are borne by private industry and for 2,600 of the 60,000 by the Department of Labor. Department of Labor costs for these men average about \$400 per person.

In fiscal year 1970, we are asking \$14.5 million of O. & M. money for Project Transition.

Mr. RHODES. Are these men relieved of their other duties when they are in Project Transition?

Mr. FROEHLKE. No. This is in addition to their other duties.

Mr. RHODES. Is it conducted at a base level or company level? How do you do it?

Mr. FROEHLKE. It is at the base level.

PROJECT REFERRAL

Mr. RHODES. In 1969 you also initiated a new training program for retiring military personnel. This is called Project Referral. What is the status of this project?

Mr. FROEHLKE. Each year approximately 70,000 men, officers and enlisted personnel, retire. Roughly 15,000 officers and 55,000 enlisted men. Here again this program, which we refer to as Project Referral,

offers preretirement counseling and job registration where these 70,000 can put their name in. Industry can come and put their request in. If the two of them match up, the retiree will have a job when he gets out of the service. This is, again, what any large industry would do for people who retire. Because we are Government—No. 1—perhaps we have a greater reason for doing this. I think of even greater importance is the age of our officers and men who are retiring. They are substantially younger than those retiring from industry and, as a result, it is more important that they have good counseling, good job referral as they retire from the military service. We are asking \$1,152,000 for Project Referral in fiscal year 1970.

Mr. RHODES. You had \$400,000 in 1969 so the project is on the increase?

Mr. FROEHLKE. I do not know what it was for 1969.

Mr. RHODES. It was estimated to cost \$400,000 for 1969.

Mr. COOKE. The estimate now is slightly lower. Possibly \$360,000.

Mr. RHODES. You do plan a substantial increase in this type activity?

Mr. FROEHLKE. The computer part of it is the newest feature, I believe.

Mr. ADDABBO. What was the estimated cost of this project in 1970?

Mr. FROEHLKE. \$1,152,000.

TRANSFER OF REFERRAL TO LABOR DEPARTMENT

Mr. ADDABBO. This project was to be carried out in cooperation with the Department of Labor, which is supposed to have a similar effort in the civilian sector of the economy. The Department hoped that eventually Project Referral would be turned over to the Department of Labor in its entirety. Has the Department of Labor indicated any recent desires to undertake or assume the responsibility for this program?

Mr. COOKE. The Department of Labor, the U.S. Employment Service, is now conducting pilot projects of automated job referral in various parts of the country. In California, for example, it is indicated to be 3 to 5 years or possibly longer before a nationwide job referral system under the aegis of labor can be placed into operation.

We are working, however, closely with the Department on that basis and hope ultimately that the services of the local U.S. Employment Offices can be utilized in project referral and vice versa.

Mr. SIKES. What is their purpose? Why is it necessary that you have your own office? Why cannot the Department of Labor accept this responsibility as they accept responsibility for others?

Mr. COOKE. Mr. Chairman, primarily because our retirees may be retiring from Andrews Air Force Base for example, and intend to live in Arizona. Hopefully, our job match system will work nationwide to permit mobility on the part of our retirees. The U.S. Employment Service offices are purely local in nature. This is an attempt to get a match of prospective employees and employers on a nationwide basis.

NEGATIVE EFFECT OF REFERRAL

Mr. RHODES. Aren't you working against yourself here in some ways? Aren't you actually encouraging officers who may be very valuable to the service to retire, that is, take an early retirement when they might not otherwise do so?

Mr. FROEHLKE. This would be my justification for it, Congressman Rhodes. It seems to me we have an obligation to an officer who has served his country well to provide this service. It is a small reward, admittedly.

Second, putting things in balance. If an officer can still make a contribution to his service, I question whether this referral service by itself would really outweigh his job satisfaction, his pay, and all the other things which would cause him to stay with the service. To the extent that it does, your point is well taken. I wouldn't think it would weigh too heavily, however.

ENCOURAGE RETIREES TO ENTER SOCIAL SERVICES

Mr. SIKES. I seem to recall that this service was started initially to encourage retirees, military retirees, to accept jobs in the social services, particularly in the teaching profession. Isn't that right?

Mr. FROEHLKE. I do not know, sir.

General BENADE. This was a part of the concept, Mr. Sikes.

Mr. SIKES. You have gotten away from that concept and you are just trying to help them find a job. Why don't you limit it to those areas where skills are apparently vitally needed such as the teaching profession?

General BENADE. Emphasis definitely will be placed on that, Mr. Chairman. This is the intent of the program. However, it is not intended to bar other types of work but emphasis will be placed on those positions having a high social utility.

Mr. SIKES. I would like a breakdown if you can provide it of the number of people assisted in finding jobs and the number who did find jobs in the area of social services.

General BENADE. Mr. Chairman, this program will not be started until about next spring and then only on a pilot basis. The details are being developed, a computer program will have to be developed, and a great deal of groundwork will have to be done before this program can even be started on a limited scale.

Mr. SIKES. How many people will be required for its operation?

General BENADE. It is expected it will involve about 50 personnel and about \$1.2 million. This would be for an entire fiscal year.

SERVICES PROVIDED TO CIVILIAN RETIREES

Mr. SIKES. Can you tell the committee whether this type of service is provided to civilian employees who retire from Government service?

General BENADE. I cannot say for certain though I would doubt it because the age limitations are so different in the civil service as compared to the military. A civil servant could work until age 70 if he so desired, but the great majority of military members, even those who complete a full 30 years of military service, are involuntarily

retired from military service while they are still in their early fifties or midfifties at the latest.

Mr. FROEHLKE. The preretirement counseling would be provided because that is needed, but this is just good personnel administration.

PROJECT VALUE

Mr. SIKES. I would like to turn back to Project Value for a moment.

Again, the purposes are laudable but I know from contact with industry that, while industry tries to comply with the Government's desires for providing employment to people who normally are considered unemployable, that most industrialists are not happy about the success of the program and they find in a great many instances it is a costly and nonproductive undertaking.

Now, the Government, I suspect, does not follow the same reasoning with regard to expecting a person to earn his way. What steps do you take to insure that persons who are employed in this area are capable of doing the job that they are employed to do and are not just carried on the payroll in order to say that you have accomplished something?

General BENADE. The program is administered by the Department of Labor, Mr. Chairman, and has very definite standards of development which are expected to be met by the trainees that are taken on in the programs. There is also a vital role that the counselors would play.

Mr. SIKES. It is administered by Defense; is it not?

General BENADE. Project Value is a joint project with the Department of Labor, sir.

Mr. SIKES. You get the people, do you not, when they are employed?

General BENADE. After they are employed; yes, sir.

Mr. SIKES. Tell me what kind of success you have with them.

General BENADE. It is my understanding that we have not yet completed the first full cycle on this program. This program is a new one which was initiated in fiscal year 1969 and, as Secretary Froehlke has indicated, it is expected it will reach its program level of slightly over 5,000 of these youngsters; but at the moment the program has only some 1,500 who are in training.

DEFENSE EMPLOYMENT

Mr. SIKES. Are there questions on the social program? If not, we turn to overall employment in the Washington area.

PENTAGON OCCUPANCY

According to information published by the Department of Defense there were on December 31, 1968, a total of 28,945 personnel in the Pentagon Building.

The total is composed of 15,444 civilians and 13,501 military. According to the same information, Mr. Secretary, there were on April 30, 1945, a total of 29,178 personnel in the Pentagon, of which 18,369 were civilians and 10,809 military. In total there is only a difference of 233 personnel between April 30, 1945, and December 31, 1968, a span of about 24 years. In the one instance we were engaged in total war, a two-ocean war, spanning the entire world, with very considerably

more people in uniform than at the present time. However, the very lowest point in the intervening years was 24,518 on December 31, 1964.

The first point I would like to raise is that it would appear that during the 24 years with all the modernization, better communication, and all the other advances in automation, the number of employees should be considerably less.

Mr. FROEHLKE. It would be my observation, based on very short tenure, Mr. Chairman, that in effect the Pentagon is the home office of the DOD. It should be the policy—

Mr. SIKES. There should have been a lot of people coming home.

Mr. FROEHLKE. Yes, sir. It should be the policymaking location for the DOD. In theory there should be relatively little fluctuation in the number of people in policymaking, whether in peacetime or in wartime.

Mr. SIKES. You may want to research that and provide additional information for the record.

Mr. FROEHLKE. Yes, sir.

(The information follows:)

Though the number of DOD personnel in the Pentagon is approximately the same as it was at the end of World War II, defense organization since then—and thus occupancy of the building—has changed materially. In 1947 the U.S. Air Force was formed. Its headquarters is in the Pentagon. The Defense Department itself was created in 1947, and the Office of the Secretary of Defense is a post-World War II function in the building. The Organization of the Joint Chiefs of Staff and the Defense Intelligence Agency have been added to the building's occupants. Substantial elements of the Navy Department have moved into the building since 1945. Thus, while the Pentagon population total has remained about the same since the end of World War II, the people working in the building are carrying out a number of tasks which were not performed in the Pentagon, or which did not exist, during that time.

In addition it would be uneconomical not to utilize the entire space of the Pentagon, a Government-owned building, while leasing office space for other Defense activities.

CIVILIANIZATION IN THE PENTAGON

Mr. SIKES. The number of military has increased in those 24 years and the number of civilians decreased approximately the same, a decrease of 2,900 civilians and an increase of 2,700 military.

Why would there have been an increase in military personnel when in the immediate past 2 or 3 years there has been a definite effort to demilitarize offices wherever possible and substitute civilians in order to free military for strictly military duties?

Mr. FROEHLKE. I would be guessing at the reply to that. May I give that some thought, sir, and supply it for the record?

Mr. SIKES. Very well.

(The information follows:)

Pentagon occupancy for the past 3 years, as of December 31, was as follows:

	Civilian	Military	Total
1966.....	14,819	12,353	27,172
1967.....	16,424	13,313	29,737
1968.....	15,444	13,501	28,945

The increase in 1967 in both civilian and military is attributed to the Vietnam buildup while the reduction in civilian occupancy in 1968 is attributed to the limitation on hiring (Public Law 90-364).

Civilianization remains one of the goals of the Department, though its progress has been handicapped by statutory hiring limitations.

PENTAGON EMPIRE BUILDING

Mr. SIKES. The gist of my observation is that this committee feels and has stated many times that something should be done to decrease the number of employees in the Pentagon, both military and civilian. Why should you need as many employees now in the Pentagon as you required at the height of World War II? In other words, are you simply permitting empire building to go on, and I suspect there is a substantial amount of that. This is the point at which offices can be expanded and both military and civilian grades increased as a result. Are you concerned about that?

Mr. FROEHLKE. Because of the size of the DOD there is no question that this is a danger. Yes, I am concerned about it, and I can assure you the Secretary of Defense is concerned about it. Thus far I have observed, and I am sure there are instances in any establishment, civilian or military, where people are not being properly utilized. Thus far I have seen relatively few examples.

REDUCING NONESSENTIAL PERSONNEL

Mr. SIKES. What objectives have been established in the Pentagon in these 6 months roughly of the new administration to establish new policies and to reduce the numbers of nonessential personnel?

Mr. FROEHLKE. In the Office of the Secretary of Defense we have instituted an in-house study—a functional study—wherein we ask each Assistant Secretary to take a long, hard look at his own function, to come in with the express purpose of cutting down the number of civilian and military employees. In addition, in my own area of responsibility, my organizational and management planning department, we created teams and asked two men to go to each one of the functional departments working with the Assistant Secretary and asking probing questions, determining the basis for their recommendations, and through it all we are now in the process of reviewing those recommendations. Within the next month we should have—not a great organizational change, but we will have some organization changes with some less people needed to do the job.

Mr. SIKES. Will you report to this committee at 3-month intervals on what is actually being accomplished in this field?

Mr. FROEHLKE. Yes.

HEADQUARTERS EMPLOYMENT

Mr. SIKES. Additional information provided the committee shows that at the end of fiscal 1969 it is estimated there will be employed 72,183 civilians and 41,447 military by the headquarters operations of the Defense Department and Defense Agencies, including Secretary of Defense activities and those of the Joint Chiefs. This is an estimated total personnel strength of 113,630 for the greater Washington Metro-

politan area. It is also estimated that at June 30, 1970, these operations will employ 72,893 civilians, 42,029 military for a total of 114,922. This is an increase of 1,292 personnel during the fiscal year 1970 at the time when hopefully the requirements of the war are going to diminish, and you would anticipate there will be plans for a decline rather than an increase.

I submit this simply to bear out my feeling that this is a staggering number of people to be employed solely in the headquarters operation. I hope you will provide the same information at quarterly periods on progress that is being made to bring this number down to a more reasonable figure.

Mr. FROEHLKE. We will do so, Mr. Chairman.

DOD CIVILIAN EMPLOYMENT

Mr. SIKES. Other defense information provided the committee shows that at December 31, 1968, the total number of civilian personnel employed by the Department was 1,390,371. This is 123,692 more than at June 30, 1966. If the provision of section 201 of the Revenue and Expenditure Control Act of 1968 remains in effect, when does the Department expect to meet the June 30, 1966 ceiling of 1,266,679.

Mr. FROEHLKE. May I supply that for the record, sir?

(Discussion off the record.)

Mr. SIKES. I would like, when you answer the question about the ceiling of 1,266,679, to have you go into specific details giving dates and strengths at specific periods, so we know what the Department is doing in meeting this requirement under the law.

Mr. FROEHLKE. We will do so, sir.

(The information follows:)

Section 201 of the Revenue and Expenditure Control Act of 1968 covers employees directly hired by the government, it does not cover employees of the government indirectly hired through contractual arrangements.

Although the total employment of the Department of Defense on December 31, 1968, including those hired by contract was about 1,390,000, the number subject to section 201 of the Revenue and Expenditure Control Act was 1,155,315.

The act establishes separate provisions and limitations for full-time permanent employees and for temporary and part-time employees. As of December 31, 1968, there were 1,126,313 full-time permanent employees and 29,002 temporary and part-time employees in DOD military functions (excludes 31,920 in civil functions) subject to the act. In addition, there were 85,084 employees in Southeast Asia, exempt from the provisions of the act by section 541 of Public Law 90-580, 90th Congress.

The 1,126,313 full-time permanent employees are subject to the provision of section 201 which limits employment to three out of four vacancies. The strength for this category of employees was 1,052,998 on June 1966. The Department of Defense must, therefore, reduce by 73,315 full-time permanent employees. At present rates of attrition, the Department of Defense would reduce an estimated 36,000 employees per year under a rule of filling 3 out of 4 vacancies. It is estimated, therefore, that the Department of Defense would reach its June 30, 1966 strength of full-time permanent employees during January 1971. Because both attrition rates and hiring authorities have varied, it is not practical to estimate precisely when Defense would reach June 30, 1966, strengths.

The 29,002 temporary and part-time employees, as of December 31, 1968, were well within the calendar year 1967 average of 43,651 permitted by the Revenue and Expenditure Control Act, as amended by section 541 of Public Law 90-580.

JOINT CHIEFS OF STAFF

Mr. SIKES. Next we will consider the Organization of the Joint Chiefs of Staff.

We will insert in the record at this point the various justification pages.

(The justification pages follow :)

INCREASED FUNDING REQUIREMENTS

Mr. SIKES. The Joint Chiefs are requesting \$6,833,000 for fiscal 1970, and an increase of \$729,000 over the actual cost for fiscal 1968 and \$36,000 over the current estimate for 1969.

ORGANIZATION OF THE JOINT CHIEFS OF STAFF, SUMMARY OF FINANCIAL REQUIREMENTS

(In thousands of dollars)

Type of expense	Fiscal year 1968 actual	Fiscal year 1969			Fiscal year 1970 budget estimate
		President's budget	Adjust- ments	Revised estimate	
Personnel compensation.....	4,141	4,910	-271	4,639	4,615
Personnel benefits.....	276	327	-20	307	306
Travel and transportation of personnel and things...	370	525	-10	515	546
Rent, communications, and utilities.....	419	522	-32	490	501
Printing and reproduction.....	45	57	+3	60	60
Other services.....	268	281	+17	298	319
Equipment maintenance and repairs.....	(77)	(102)	(+14)	(116)	(122)
Building maintenance and repairs.....	(163)	(154)	-----	(154)	(154)
Official representation.....	(15)	(18)	-----	(18)	(18)
Other.....	(13)	(7)	(+3)	(10)	(25)
Supplies and materials.....	281	345	-48	297	299
Equipment purchases.....	304	231	-40	191	187
Total.....	6,104	7,198	-401	6,797	6,833

ORGANIZATION OF THE JOINT CHIEFS OF STAFF, SUMMARY OF PERSONNEL REQUIREMENTS

	Fiscal year 1968 actual	Fiscal year 1969			Fiscal year 1970 budget estimate
		President's budget	Adjust- ments	Revised estimate	
YEAREND STRENGTH					
Civilian:					
Full time.....	469	536	-87	449	445
Temporary employees.....	24	20	-----	20	20
Part time and intermittent.....	19	10	+15	25	25
Subtotal, civilian.....	512	566	-72	494	490
Military.....	1,428	1,358	+117	1,475	1,485
Total, yearend.....	1,940	1,924	+45	1,969	1,975
AVERAGE EMPLOYMENT					
Civilian:					
Full time.....	460	527	-67	460	444
Temporary employees.....	7	5	-----	5	5
Part time and intermittent.....	10	6	+11	17	17
Subtotal, civilian.....	477	538	-56	482	466
Military.....	1,440	1,359	+122	1,481	1,496
Total, average employment.....	1,917	1,897	+66	1,963	1,962

Why is the funding for the operation of the Joint Chiefs being increased so much over the actual for 1968?

Mr. FROEHLKE. I will ask General Liebman to answer that.

Mr. SIKES. Very well.

General LIEBMAN. I would not say there is an appreciable increase on it. We were hopeful that we were going to be able to hold the line and in fact decrease to some extent and we have in some areas.

Mr. SIKES. I am looking at \$6,833,000 for fiscal 1970, an increase of \$729,000 over fiscal year 1968, and the fact that fiscal 1969 is almost as high as fiscal 1970. That indicates a very substantial increase and not a decrease.

General LIEBMAN. Actually, the revised estimate for fiscal 1969 is \$6,797,000. I would assume that is a pretty accurate figure. So there has been a fairly substantial decrease.

Mr. SIKES. That is not a great deal less than \$6,833,000. What are the increases or what do the increases include, other than pay raise and automatic in-grade promotion?

General LIEBMAN. One other one I can think of off hand was the transfer of the Special Assistant for Military Assistance Affairs function from the MAP program funding into an O. & M. category.

Mr. SIKES. Provide a breakdown for the record showing exactly what the increase is for fiscal 1969 over fiscal 1968 and what the relative amounts are for fiscal 1970.

General LIEBMAN. Yes, sir.

(The information follows:)

BREAKDOWN OF THE INCREASES AND DECREASES FOR FISCAL YEARS 1969 AND 1970

(Obligations in thousands of dollars)

Type of expense	Fiscal year 1968 actual	Adjustments, fiscal year 1969 over fiscal year 1968	Fiscal year 1969 revised estimate	Adjustments, fiscal year 1970 over fiscal year 1969	Fiscal year 1970 budget estimate
Personnel compensation.....	4,141	+498	4,639	-24	4,615
Personnel benefits.....	276	+31	307	-1	306
Travel and transportation of personnel and things.....	370	+145	515	+31	546
Rent, communications, and utilities.....	419	+71	490	+11	501
Printing and reproduction.....	45	+15	60	-----	60
Other services.....	268	+30	298	+21	319
Equipment maintenance and repairs.....	(77)	(+39)	(116)	(+6)	(122)
Building maintenance and repairs.....	(163)	(-9)	(154)	-----	(154)
Official representation.....	(15)	(+3)	(18)	(-)	(18)
Other.....	(13)	(-3)	(10)	(+15)	(25)
Supplies and materials.....	281	+16	297	+2	299
Equipment purchases.....	304	-113	191	-4	187
Total.....	6,104	+693	6,797	+36	6,833

INTEGRATED PLANNING STAFF

Mr. SIKES. The committee is aware of the fact that the operation of the Joint Continental Defense Systems Integrated Planning Staff has been transferred to the Air Force. I note your comment, Mr. Secretary, that this transfer was made as planned and indicated in testimony before the committee last year. However, there was criticism by the committee last year on the implementation of this organization. Why was it implemented?

General LIEBMAN. Sir, if I may, I read the testimony from last year. It would seem to me that the question boils down to simply one of better management of the various systems involved and economy of actual expenditures, although it may be a little hard to prove. This actually was initiated in the spring of 1967 with the thought

that at that point in time the Sentinel system was coming along, there were tremendous expenditures of funds that were being visualized at this point in time. We are talking about radar systems, data systems of all types, actual weapons systems. You have a situation where you have functional areas that cut across departments, not just unified commands. You had the NORAD defense people involved very heavily, you had the SAC involved in that you have to have an integration of the defensive and offensive defense systems; it was to assure that the most efficient management of the continental defensive systems were provided to the Joint Chiefs of Staff that this staff was formed. It is simply and purely a better management of the resources that are being applied to continental defense and to try to economize in the expenditures.

Mr. SIKES. When was it formed?

General LIEBMAN. They are finishing up getting their actual staffing right now.

Mr. SIKES. Was this committee notified that it was to be established?

General LIEBMAN. I cannot answer that question, sir. I would have to supply it.

Mr. SIKES. Check the records on that. I do not think we were and we should have been.

(The information follows:)

While the problems of integrated planning for continental defense had been under study for some time, the Joint Continental Defense Systems Integrated Planning Staff was not established until November 1, 1967. Although there is no formal requirement for notifying the Committee of such organizational changes, it was highlighted in the testimony of the then-Assistant Secretary of Defense (Administration), Mr. Horwitz, on April 2, 1968, because of the previous interest of the Committee in such matters.

(CLERK'S NOTE.—For further discussion of the Joint Continental Defense Systems Integrated Planning Staff see pp. 218 through 223 of pt. 4 of the 1969 Department of Defense appropriations hearings.)

COST OF INTEGRATED PLANNING STAFF

Mr. SIKES. What is the Planning Staff going to cost?

General LIEBMAN. In the fiscal year 1969 budget there was a figure of \$400,000 and I do not have the exact figure for fiscal 1970 at this point.

Mr. FROEHLKE. We will supply that for the record.

(The information follows:)

The fiscal year 1970 Air Force budget estimate includes an estimated cost of \$1,642,000 for the support of the Joint Continental Defense Systems Integrated Planning Staff for a full year in fiscal year 1970.

The Air Force revised estimate for fiscal year 1969 is \$593,500.00 and is representative of somewhat less than 50 percent of a full year of operation.

JOINT CHIEFS OF STAFF EMPLOYMENT

Mr. SIKES. The average civilian personnel strength is to decrease by 16 man-years during 1970. The average military man year strength will increase by 56. This will be an increase of 40 man-years of personnel strength. Is this increase necessary?

(The information follows:)

The increase of 56 military man years of employment from fiscal year 1968 to fiscal year 1970 is necessary to support an additional function, increased work load, and the transfer of the operation of the Special Assistant for Military Assistance Affairs. The increase in military personnel is not in any way related nor influenced by the civilian personnel reduction.

Mr. SIKES. You explain in your statement, Mr. Secretary, that 10 man years is associated with the transfer of the operation of the Special Assistant for Military Assistance Affairs for the MAP program to the Joint Chiefs operations. What other programs are the other 46 military personnel to be associated with? Provide that for the record.

(The information follows:)

The other 46 military personnel average employment increase is associated with the establishment of an automated message processing and delivery system and increased workload in the operations, planning and logistics management areas.

COST OF SPECIAL ASSISTANT FOR MILITARY ASSISTANCE AFFAIRS

Mr. SIKES. What is the actual cost of operations of the Special Assistant for Military Assistance Affairs in fiscal 1968, and the estimate for 1969 and 1970. That can be supplied.

(The information follows:)

The total cost of operations of the Special Assistant for Military Assistance Affairs is:

	[Obligations in thousand dollars]
Fiscal year 1968, actual.....	62
Fiscal year 1969, estimate.....	71
Fiscal year 1970, estimate.....	87

CHAIRMAN'S SPECIAL STUDIES GROUP

Mr. SIKES. What is the, "Chairman's special studies group?"

General LIEBMAN. Sir, this is a group that does exactly what the name implies. At this point in time I can use examples. They are providing backup information to the Chairman of the Joint Chiefs of Staff on impending arms limitation discussions.

Mr. SIKES. Surely they did not invent these studies. They were going on somewhere, or similar studies were going on. This appears to be typical of the thing that I have been expressing concern about. Everywhere we look there is another studies group. We are going to get the place so cluttered up with studies groups that you won't have room for anything else.

Mr. FLOOD. Yes; you will have a group to study the study group.

General LIEBMAN. Sir, I can only make the observation——

Mr. SIKES. What do they do that no other group has done before?

General LIEBMAN. Very detailed and specialized studies in a number of subjects.

Mr. SIKES. You know that has been going on all over the lot down there.

General LIEBMAN. I think the question must be asked how well is it being done.

Again I come back to management of resources, sir, in that we do restrict the creation of special study groups. If you keep in mind that the services have to provide the manning for these and they very jealously watch the manning situation that is supplied to the JCS, the justification provided is very, very detailed and pretty well has to stand up in court. This is not a sufficient answer. The answer from our standpoint is that the special study groups are only set up when required. This group has been made permanent to do this thing. At such time as it appears they are no longer required we will be the first to phase them out.

ABOLISHING OF STUDY GROUPS

Mr. SIKES. Do you know many of these study groups that have been abolished?

General LIEBMAN. Yes, sir; I do.

Mr. SIKES. You do? Name one.

Mr. FLOOD. Did you ever hear of anything more permanent in Washington than a temporary group, agency, or commission or building? It is one of the most permanent things in town.

General LIEBMAN. Just very recently there was a special study group that was phased out.

Mr. SIKES. Will you tell us for the record what groups have been established for studies in the last 3 fiscal years and which have been abolished?

General LIEBMAN. In the Joint Chiefs?

Mr. SIKES. Yes, sir.

General LIEBMAN. Yes, sir.

(The information follows:)

THE LISTING BELOW REFLECTS THOSE GROUPS ESTABLISHED FOR STUDIES IN THE LAST 3 FISCAL YEARS AND WHICH HAVE BEEN ABOLISHED

Title	Start	End
Fiscal year 1967:		
Halfway house study.....	August 1966.....	November 1966.
Study of electronic countermeasures.....	September 1966.....	March 1967.
Study of record communications in the Pentagon.....	do.....	August 1969.
Night song study.....	January 1967.....	March 1967.
Operations Against North Vietnam.....	April 1967.....	June 1967.
U.S. overseas base requirements in the 1970's.....	June 1967.....	December 1968.
Strategic mobility analysis and planning (MOVECAP 69-73).....	do.....	December 1967.
Fiscal year 1968:		
Electronic countermeasures capability in certain systems.....	July 1967.....	September 1967.
Air campaign study.....	October 1967.....	December 1967.
Joint staff/service special military construction study.....	do.....	July 1968.
Methodology for determining aircraft requirements.....	November 1967.....	February 1968.
Seaborne intelligence collection platform study.....	January 1968.....	May 1968.
Study to determine U.S. tactical air warfare requirements and force effectiveness in the Korean theater.....	March 1968.....	July 1968.
Arc Light study.....	April 1968.....	May 1968.
Redeployment planning study.....	do.....	April 1968.
JCS navigation study.....	do.....	June 1969.
By phase:		
I requirements.....	do.....	September 1969.
II technical phase.....	May 1968.....	October 1968.
III cost/effectiveness comparison of new systems.....	October 1968.....	June 1969.
Naval gunfire support operations.....	May 1968.....	August 1968.
Fiscal year 1969:		
Strategic mobility analysis and planning (MOVECAP 70-74).....	August 1968.....	February 1969.
Project assist.....	September 1968.....	January 1969.
Arc Light follow-on.....	do.....	November 1968.
Port Watch study.....	March 1969.....	June 1969.

Mr. SIKES. We are apprehensive that you are getting into the area of creating groups to study groups. When was the chairman's group established?

General LIEBMAN. The chairman's special study group, sir.

Mr. SIKES. Yes.

General LIEBMAN. If my memory serves me it would be approximately 7 years ago.

COST OF CHAIRMAN'S SPECIAL STUDY GROUP

Mr. SIKES. What is the estimated operating cost for this special study group for fiscal 1970?

General LIEBMAN. I would like to provide that for the record.

Mr. SIKES. And for fiscal years 1968 and 1969 if available.

(The information follows:)

The total cost of operating the chairman's special study group is:

[Obligations in thousand dollars]

Fiscal year 1968, actual.....	124
Fiscal year 1969, estimate.....	130
Fiscal year 1970 estimate.....	133

SPECIAL ASSISTANT FOR ENVIRONMENTAL SERVICES

Mr. SIKES. I note from the justifications that the Chiefs have established the Office of the Special Assistant for Environmental Services, a project which was also criticized by this committee last year. What is the justification for it?

General LIEBMAN. Sir, I saw that testimony last year too. I would like to draw an example of that to the Normandy invasion when probably the most critical thing that General Eisenhower faced was the environmental conditions that would exist on the date that he proposed to make that invasion. You must have a staff that is capable of researching, analyzing, evaluating and recommending.

Mr. SIKES. He had a staff that researched this program. They knew everything that could conceivably be known about environmental problems in connection with that invasion. It was postponed several times at the recommendation of the staff.

General LIEBMAN. I drew the analogy only in that it is a comparable type of staff. We had actually on the Joint Staff from the very outset a joint meteorological group. It was recognized at that point as a requirement. The name is a fancy name title perhaps but, in fact, the functions are basically an expansion of the original joint meteorological group functions.

Mr. SIKES. I would like to know how many people are involved and what the cost will be.

(The information follows:)

The total number of personnel authorized for the special assistant for environmental services by the Secretary of Defense in December 1967, was 47, of which 20 were civilian. However, due to the civilian employment restrictions, the average employment and associated cost projected in the President's budget for fiscal year 1969 were reduced 5 man-years and \$43,000 in the fiscal year 1970 budget.

The total cost of operating the special assistant for environmental services is:

[Obligations in thousand dollars]	
Fiscal year 1968.....	20
Fiscal year 1969.....	128
Fiscal year 1970.....	135

INTERDEPARTMENTAL ACTIVITIES

Mr. SIKES. On interdepartmental activities, we note that you do not intend to fund any interdepartmental activities during fiscal 1970. Are they funded elsewhere?

Mr. SNYDER. Yes, sir. The item as identified as a computer programs for Office of Special Representative for Trade Negotiations, has been transferred from this account to the regular Secretary of Defense activities account. That is the only one.

Mr. SIKES. What will be the cost?

Mr. SNYDER. The cost will be \$25,000.

Mr. SIKES. Are any of these programs to be funded from the Secretary's Contingency Fund?

Mr. SNYDER. No, sir.

ARMED FORCES INFORMATION AND EDUCATION

Mr. SIKES. Turning to the "Armed Forces information and education," there is a request for \$12,334,000. This is an increase of \$1,605,000 over the actual for 1968, and \$1,054,000 above the current estimate for 1969.

I would like to have inserted at this point in the record the sheets from the justifications.

(The sheets follow:)

EDUCATION PROGRAMS—SUMMARY OF FINANCIAL REQUIREMENTS

[In thousands of dollars]

Type of expense	Fiscal year 1968 actual	Fiscal year 1969			Fiscal year 1970 budget estimate
		President's budget	Adjustments	Revised estimate	
Personnel compensation.....	1,551	1,649	+57	1,706	1,767
Personnel benefits.....	120	127	-6	121	129
Travel and transportation of persons.....	17	35	-15	20	20
Transportation of things.....	14	15	+5	20	20
Rent, communications, and utilities.....	636	695	+46	741	828
Printing and reproduction.....	583	298	+32	330	424
Other services.....	1,017	905	+57	962	1,123
Supplies and materials.....	1,613	2,208	-318	1,890	2,203
Equipment purchases.....	1	3	+44	47	8
Grants, subsidies, and contributions.....	.....	1	-1	.....	.....
Total (direct obligations).....	5,552	5,936	-99	5,837	6,522

OFFICE OF INFORMATION FOR THE ARMED FORCES—SUMMARY OF FINANCIAL REQUIREMENTS

[In thousands of dollars]

Personnel compensation.....	1,715	1,807	+47	1,854	1,846
Personnel benefits.....	126	130	+5	135	137
Travel and transportation of persons.....	54	51	-5	46	48
Transportation of things.....	48	52	+17	69	74
Rent, communications, and utilities.....	241	275	+3	278	291
Printing and reproduction.....	509	585	+12	597	692
Other services.....	2,189	2,200	+87	2,287	2,518
Supplies and materials.....	137	167	-12	155	171
Equipment purchases.....	158	17	+5	22	35
Total (direct obligations).....	5,177	5,284	+159	5,443	5,812

EXPLANATION OF INCREASE

Mr. SIKES. This is a large increase, though it is an important area. Will you tell us why you propose the current requested increase?

Mr. FROEHLKE. I will ask Dr. Brodsky to explain that.

Dr. BRODSKY. I would like to speak for the educational aspects. Our increase is \$685,000. Of that increase approximately 35 percent is accounted for by the fact that we are closing down the U.S. Armed Forces Institute in Europe and consolidating its functions in Madison, Wis. The net result actually will be a dollar savings and a gold flow savings as well as increased efficiency. This does become part of our budget for the following year. The next large item is for replenishment of educational supplies and materials, because we have run short in a number of areas because of the increasing demands for such supplies.

Those two areas, the absorption of USAFI, Europe, into Madison and the replenishment of our educational supplies and materials comprise the major portions of the increase in the U.S. Armed Forces Institute program.

SUPPLIES FOR ARMED FORCES INSTITUTE

Mr. ADDABBO. Why do you need an increase of \$313,000 for additional supplies and materials for the Armed Forces Institute?

Dr. BRODSKY. Because our supply situation has deteriorated to a point where we are not able to meet all of our demands. So we have to replenish our educational supplies.

Mr. ADDABBO. What is your current inventory level of supplies and materials and what has it been at the end of the last 3 fiscal years?

Mr. KUNZ. At the present time it is \$1,400,000. A year before it was about \$1,600,000 and the year before that it was \$1,900,000.

Mr. ADDABBO. What is the reason for the large inventory?

Mr. KUNZ. In order to maintain a mission stock which is what our books consist of in that each book is printed individually under a contract. We do not buy shelf stock.

Consequently, in buying mission stock we buy a quantity equal to a 1 year's turnover each time we purchase. The result is that if we buy only once during a year we have to have on hand a stock that is at least 6 to 8 months equivalent of what our issues run in a given year's time.

This is usually about \$2,400,000 worth of issues.

Mr. ADDABBO. How long does it take you to obtain this material once it is ordered?

Mr. KUNZ. Our procurement leadtime is around 120 days, on the average.

Mr. ADDABBO. Then why the 1-year turnover?

Mr. KUNZ. Only because we get our appropriation for a given year and as a consequence we try to buy once each year to get the benefits of minimal cost for quantity purchases.

Mr. ADDABBO. Again we go back to what is the need for the increase of \$313,000.

Mr. KUNZ. The increase is primarily generated by the fact that we developed a program which begins at the literacy level. This is a new program running from literacy on up to prehigh school and into basic high school which has imposed a cost on the Institute for materials that has run a little over \$300,000 a year, whereas previously he had been supporting that type of activity at a cost of about \$60,000.

Mr. ADDABBO. With this large inventory, do you run into loss due to deterioration or obsolescence?

Mr. KUNZ. No, sir; we do not. On an on-going basis our surplus declarations have not exceeded \$10,000 a year in the last 4 or 5 years of operation.

ARMED FORCES INSTITUTE CIVILIAN EMPLOYMENT

Mr. ADDABBO. How many new civilian employees do you plan on hiring for the Armed Forces Institute?

Dr. BRODSKY. The Armed Forces Institute has actually been decreasing in the number of employees. We shall be adding 17 new employees, but they are absorbing the function which was previously accomplished by over 50 employees in Europe. So there really is a net reduction in the number of employees in both operations.

ARMED FORCES MOTION PICTURES

Mr. ADDABBO. What additional requirements generate the need for an increase of \$143,000 for additional publications and production services for the Armed Forces motion pictures?

Mr. BROGER. Mr. Chairman, may I answer that, please? Primarily this is because of two things. One, we are trying to make our film more attractive to the troops which means going to color. They have obviously been used to color as they come to the service.

A very small amount will be putting a few more films into color. Another one of the problems we have had is the increased emphasis on some programs that we have had to spend an unusual amount of money on, such as drug abuse. We had to put almost \$200,000 into the drug abuse program alone in films and publications. This is primarily the reason we are asking for more money in this area. That is just the motion pictures and publications. It does not have to do with radio or television.

SPECIAL PUBLICATIONS FOR SOCIAL PROGRAMS

Mr. SIKES. Why is it necessary to prepare special publications for project transition, and project 100,000?

Mr. BROGER. We do as little as we possibly can on that. From an informational point of view some things do need to be done and we do try to support these projects to the extent we are able.

Mr. SIKES. What is the cost of the special publications that are necessary for these programs?

Mr. BROGER. As I recall, we spent about \$10,000 on a publication for project transition. We reprinted our annual Yank magazine as a support for that project. But we do not have anything in our fiscal 1970 budget to support transition as a line item.

PENTAGON FORUM AND VIETNAM REPORT

Mr. SIKES. What are the special productions entitled "Pentagon Forum" and "Vietnam Report."

Mr. BROGER. Pentagon Forum is a program designed to have the top level people in the Defense establishment including the Secretary of Defense, the Assistant Secretaries and Chiefs of Staff to sit with four enlisted men and answer questions on a TV format. This gives an opportunity for the senior people in the Defense establishment to be seen by the troops and commanders as they really discuss these various projects that they are involved in. Vietnam Report, we take the combat camera footage from Vietnam, put it back into a 30-minute television show every other week so the troops and commanders in Vietnam can see the whole operation from north to south.

COST OF INFORMATION SERVICES

Mr. SIKES. I would like to have for the record the total amount included in the defense budget for Armed Forces information services. Will you provide that by the types of services provided and also compare these figures with the actual for 1968, and the current estimate for 1969?

(The information follows:)

OFFICE OF INFORMATION FOR THE ARMED SERVICES

(In thousands of dollars)

	Actual, fiscal year 1968	Estimate, fiscal year 1969	Estimate, fiscal year 1970
Armed Forces Radio Service.....	\$1,654	\$1,723	\$1,914
Armed Forces Television Service.....	1,917	1,948	1,985
Armed Forces Press Service.....	228	267	268
Armed Forces Motion Picture Service.....	717	730	768
Armed Forces Publications Service.....	661	775	877
Total.....	5,177	5,443	5,812

THAILAND TV NETWORK

Mr. SIKES. What type of a TV network are you establishing in Thailand and how is it operated?

Mr. BROGER. In Thailand we are establishing both radio and television for the troops.

Mr. SIKES. Is this the first time that this will have been available?

Mr. BROGER. Yes, sir.

Mr. SIKES. Does it compare with services provided to troops elsewhere?

Mr. BROGER. Comparable to Vietnam. This, as you know, is a very unusual situation in both Vietnam and Thailand. We will have approximately seven television stations in Thailand and a number of radio stations that will cover 90 percent of the combat and combat support troops outside of Bangkok and 72 percent of the U.S. forces in Bangkok. As you know, there are about 47,000 troops in Thailand. There are already 530 TV receivers there. So we are hoping to keep this coverage for a troop information point of view just as we have in Vietnam.

Mr. SIKES. Will it be available other than to troops?

Mr. BROGER. No, sir.

Mr. SIKES. Can the civilian population tie in in any way?

Mr. BROGER. We have taken every precaution to limit the radiated power of both the radio and television stations. I have personally investigated it on the spot. The radio stations have been limited to such an extent that they cover just the base.

In most cases, close circuit radio.

Mr. SIKES. Will it be available to U.S. personnel?

Mr. BROGER. Only if they are on the base, sir.

Mr. SIKES. Only on base?

Mr. BROGER. Yes, sir.

COST OF THAILAND NETWORK

Mr. SIKES. For the record, tell us the total cost of establishing the network and the total operating cost for fiscal 1970.

(The information follows:)

The total cost of establishing the network and the total operating cost for fiscal 1970 are as follows:

INSTALLATIONS COST

All funds included in Air Force budget for past 5 years: TV, \$1,386,544; radio, \$399,000.

FISCAL YEAR 1970 OPERATING COST

Department of the Air Force—\$803,129 which includes \$599,004 for military personnel.

Office of Information for the Armed Forces—\$286,000 for which \$270,000 is for television; \$16,200 for radio. In addition, funds for military personnel at AFRTS-LA to support radio/TV for Thailand amount to \$88,000 which are not included in the budget for the Office of Information for the Armed Forces.

INFORMATION SERVICES OF OTHER NATIONS

Mr. SIKES. What can you tell me about comparable services for information and education for armed forces by other nations, notably Russia?

Mr. BROGER. I cannot tell you very much about Russia. I wish I could. I know they do carry out a very intensive indoctrination program for their troops. We have seen some of the films of how a Russian soldier is trained and indoctrinated.

Mr. SIKES. They have a very good one out.

Mr. BROGER. Yes, sir. We have one for the North Vietnamese as well, a film that was put out last year on the indoctrination for the North Vietnamese.

Mr. SIKES. Do you have that film?

Mr. BROGER. Yes, sir.

Mr. SIKES. I think this committee would like to see both of them.

Mr. BROGER. Yes, sir; I will be happy to show it to you. I will arrange to have it brought over.

EDUCATION PROGRAMS OF OTHER COUNTRIES

Mr. SIKES. What do you know about their educational programs?

Mr. BROGER. Some of these comments are made in the films themselves which is a part of the educational indoctrination process, which is a little different under our system. I have seen some of the radio stations provided by ROK forces, the Korean forces to their troops. I have visited some of their installations. I have visited some of the Canadian radio stations. They do a very fine job.

Mr. SIKES. Do they have an education program that is comparable to ours?

Mr. BROGER. No, sir; I am afraid not. I am really not qualified to answer that, but I think it is true they do not have.

Mr. SIKES. We are the only ones providing educational opportunities.

Mr. BROGER. May I defer to Dr. Brodsky?

Dr. BRODSKY. I am not able to answer the question about the Soviets.

Mr. SIKES. It seems that this can be researched and an answer provided. Surely there is something available.

Dr. BRODSKY. I am sure there is. I am just not qualified.

Mr. BROGER. The Department of Health, Education, and Welfare made a study several years ago, Dr. Caldwell did that, on Russian education which probably is still pretty good.

Mr. SIKES. The Russian education process is very effective at other levels. I would assume they have not overlooked the importance of troop education but I trust, Mr. Secretary, this will be researched and the committee given information on it.

Mr. FROEHLKE. We will do so, sir.

(The information follows:)

EDUCATION OF SOVIET TROOPS

The major distinguishing features of Soviet education may be briefly stated as follows: (1) monopoly control by the State over educational practices, (2) the complete secularization of education, (3) the integration of productive work with educational training, (4) the inclusion of physical and military training, (5) intensive political indoctrination both in and out of school through partisan youth organizations, and (6) extensive emphasis on scientific-technical subjects at all levels of education.

The military school system within the U.S.S.R. for officers can be described as a pyramid with the foundation or base represented as the sources of officers and the apex representing their highest level of military schooling—the Military Academy of the General Staff. In between are intermediate levels for officer candidate schools, advanced courses for officers, military academies having command and specialized courses, branch military academies and higher academic courses, and finally the Military Academy of the General Staff.

Soviet prospective officers are drawn from the following sources:

1. Graduates of civilian secondary schools.
2. Graduates of the military preparatory schools.
3. Personnel from the enlisted ranks with a secondary school education.

In regard to the advanced courses, these are not regarded as prerequisites for further military schooling, but are regarded as refresher and qualification courses. As in the United States, interspersed between each level of schooling, the officer normally returns to duty assignments for varying lengths of time.

The importance of the higher educational institutions of the military establishment of the U.S.S.R. stems from the fact that contrary to military education practices in most Western countries, including the United States, the majority of Soviet military academies offer professional training in such fields as engineering, chemistry and medicine, for service in the military establishment, and do not train exclusively command and staff officers. In all likelihood these military-engineering academies for example, Dzerzhinskii Artillery, Zhukovskii Aviation Engineering, Budenyl Electrical Engineering and Communications, Voroshilov Chemical Warfare, Armaments Industry and others) offer not only comparable, but perhaps even superior professional training as compared with civilian engineering institutes.

The numerous military officers' schools (uchilishcha) which offer military and technical training are often overlooked in appraisals of the Soviet higher educational system. These are sometimes regarded as higher educational establishments, but the actual level of training in these establishments is cloaked in uncertainty. For example, the VVAUL (Vysshee Voennoe Aviatsonnoe Uchilishche Letchikov—Higher Military Aviation School for Pilots) in Eisk (in the North Caucasus) and Kachinskoe (near Stalingrad), or the VVAUSH (Vysshee Voennoe Aviatsonnoe Uchilishche Shturmanov—Higher Military Aviation School for Navigators) in Orenburg, and scores of similar institutions in other branches of the military service are known to grant, after up to 5 years of training, a certificate of higher education as well as an officer's commission.

Many of the military engineering-technical, medical and other personnel thus trained, even though committed to life-time military careers, may eventually be transferred to civilian employment. This has an important implication in any appraisal of the profession resources of the U.S.S.R.

Within the U.S.S.R. there is a variety of so-called closed-access (zakrytye) higher educational institutions of the military establishment of the U.S.S.R. and of the Communist Party. Specific and current information is not readily available concerning these schools because of the "Iron Curtain" security within the U.S.S.R. These military academies are in fact multi-branch establishments. A Moscow-based military academy might have several branch units or indeed have as many as 20 or 30 branch units in other locations. Training in military academies lasts from 5 to 6 years.

The Military Academy of the General Staff is the highest level professional military educational institution in the U.S.S.R. It is the joint or combined command and staff academy of the Soviets located in Moscow.

Besides the residence-type schooling provided by the schools listed above, the Soviet officer has the opportunity to complete his education through the Academy

level by extension and correspondence courses which are offered by all military establishments. This program is widely used throughout all components of the armed forces.

A more complete description of the Soviet educational system may be found in "Education and Professional Employment in the U.S.S.R.," prepared by Nicholas DeWitt, Russian Research Center, Harvard University for the National Science Foundation.

A classified description of the Soviet education system for their armed forces is contained in:

1. "Training of Soviet Ground Forces" (AP 1-220-3-5-65 INT), Defense Intelligence Agency, December 1965.
2. "Soviet Military Schools" (AP 1-210-8-1-INT), Defense Intelligence Agency, December 1958.

INTEREST IN EDUCATION PROGRAMS

Mr. SIKES. Generally, what is the attitude of our forces toward the educational opportunities that are provided to them from the standpoint of participation, Mr. Secretary? Can you give comparable numbers in recent years and indications of the comparative interest on the part of uniformed forces.

Mr. FROEHLKE. Dr. Brodsky, do you have the statistics?

Dr. BRODSKY. In the main, Mr. Chairman, the Armed Forces are taking increasing advantage of the increasing educational opportunities that are provided to them through the U.S. Armed Forces Institute, which is the budget item that is under consideration here. Our requirement is increasing steadily at all levels running from teaching people how to read and write, to actually providing graduate educational opportunities, particularly for draftees who are coming in and who are college graduates.

Each of them seeks educational opportunities and we are keenly aware of the fact that providing such educational opportunities is an incentive for staying in the services. We are seeking ways to extend these opportunities.

EDUCATION OPPORTUNITIES IN THE SERVICE

Mr. SIKES. I would like for you to provide something specific on the opportunities for advanced education offered to draftees. That is something that I think will be interesting to the committee and to the Congress.

Mr. Secretary, although this has been discussed elsewhere, the fact remains that there will be several volumes of these hearings and I think it is important enough to be repeated at this point for the purposes of the record. Would you have a member of your staff summarize just what is done, what is included, who are affected, who can take advantage of the various educational opportunities in this program so that it will be available for those who are interested.

Mr. FROEHLKE. We will do so, sir.

(The information follows:)

It is the policy of the Department of Defense to assist and encourage military personnel, draftees, as well as career personnel, to develop educationally and professionally while in the service. The Department of Defense has established educational goals which it believes are minimal toward providing growth on the job, personal fulfillment, and citizenship. Each enlisted man is encouraged to at least complete high school or its general educational development equivalent. For those who have completed high school, a wide variety of off-duty educational pro-

grams are available. They include programs such as tuition for courses at civilian educational institutions, educational benefits under the Veterans Readjustment Benefits Act, on-base continuing educational classes, correspondence courses, and various degree completion programs.

The services will give tuition assistance to military personnel to encourage their taking courses at approved civilian institutions. Provisions in the Appropriations Act each year permit reimbursement up to 75 percent of cost.

Under the Veterans Readjustment Benefits Act, special provisions are included to enable members of the Armed Forces who have served at least 2 years in an active duty status to use educational benefits while still on active duty. Thus, many servicemen have the choice of applying for either tuition assistance or for educational benefits under the Veterans Assistance Act to support their continuing education.

A variety of college programs are available to servicemen as a result of cooperative arrangements with junior and senior colleges and universities. Thus, for example, an airman stationed at Selfridge Air Force Base in Michigan may take courses at any one of seven institutes of higher learning. A number of opportunities for continuing college level education exists overseas as well.

In addition to the above methods of providing education, many bases hire instructors and counselors to meet identified educational needs. The Armed Forces also have access to a wide range of correspondence courses ranging from technical and vocational to academic. The U.S. Armed Forces Institute is a major element of the educational program offered to the serviceman through correspondence and group study. USAFI currently offers about 200 courses with almost half of these at the college level. Additionally, agreements exist with about 45 colleges and universities to provide some 6,000 courses through correspondence to servicemen.

Mr. SIKES. Are there questions at this point?

USAFI AT MADISON, WIS.

Mr. DAVIS. When you get the European operation transferred back to Madison, will all of USAFI be at Madison?

Dr. BRODSKY. All except three small installations, Alaska, the Caribbean, and Hawaii. These are very small ones that we will ultimately be looking at.

Mr. DAVIS. When you say small, how many people are you talking about?

Dr. BRODSKY. I think two in Hawaii, seven in Alaska, and one or two in the Caribbean.

Mr. DAVIS. How many people do you have at Madison?

Dr. BRODSKY. We are now at 233. With the 17 who will be added as a result of the transfer in Europe it will be 250.

Mr. DAVIS. Except for these few people you spoke of, the entire USAFI operation will be conducted at Madison?

Dr. BRODSKY. That is right, sir.

Mr. DAVIS. How many different courses does USAFI make available?

Dr. BRODSKY. Through Madison itself approximately 200. Additionally, we have arrangements with about 45 universities throughout the country and we are up to about 6,000 different courses overall.

Mr. DAVIS. Do you have an idea of how many total people in the Armed Forces are making use of USAFI facilities?

Dr. BRODSKY. The USAFI itself in terms of the number of individuals over 300,000.

Mr. DAVIS. Have you moved off the square there?

Dr. BRODSKY. Yes, sir; we are at Park Plaza..

Mr. DAVIS. That is a rented facility.

Dr. BRODSKY. That is a rented facility.
Mr. DAVIS. That is all, thank you.

COMMITTEE TO BE ADVISED REGARDING INTELLIGENCE AND
 COMMUNICATIONS MATTERS

Mr. SIKES. Mr. Secretary, we are aware that you have recently been appointed to make a comprehensive study of intelligence activities in the Department of Defense. We do not intend to discuss this with you at this time but we are hopeful you will be ready to discuss the subject within a reasonable time, and that you will keep this committee advised of your findings and any changes that will be made. We are also aware of the fact that you are responsible for direction of the National Communications System. Again we will not discuss this matter at this time. It has been covered with the Director of the Defense Communications Agency. However, both of these are matters of very great interest to this committee and we want you to be prepared to discuss both with us within a reasonable period and to keep us advised regarding any changes that are contemplated under your guidance.

Mr. FROEHLKE. I will keep you advised and at your pleasure I will be happy to report on either one.

Mr. SIKES. Thank you very much, gentlemen, for your presence and for your responses to the committee.

Mr. FROEHLKE. Thank you.

Mr. SIKES. The committee will recess at this point until 2 o'clock when the committee will again take up "Research, Development, Test and Evaluation, Air Force."

THURSDAY, JULY 24, 1969.

TESTIMONY OF VICE ADM. H. G. RICKOVER

WITNESSES

VICE ADM. HYMAN G. RICKOVER, DIRECTOR, DIVISION OF NAVAL REACTORS, U.S. ATOMIC ENERGY COMMISSION
W. WEGNER, DEPUTY DIRECTOR, DIVISION OF NAVAL REACTORS, U.S. ATOMIC ENERGY COMMISSION
D. T. LEIGHTON, ASSOCIATE DIRECTOR FOR SURFACE SHIPS, AND THE LIGHT WATER BREEDER PROJECT, DIVISION OF NAVAL REACTORS, U.S. ATOMIC ENERGY COMMISSION
M. C. GREER, ASSOCIATE DIRECTOR FOR FISCAL MATTERS, DIVISION OF NAVAL REACTORS, U.S. ATOMIC ENERGY COMMISSION

Mr. MAHON. The committee meets this afternoon for the purpose of hearing Admiral Rickover, one of the outstanding men of the Nation, and the world. He is a man who has made a tremendous contribution to the national defense and the country.

The committee has a number of questions for you, Admiral, but first I am sure the committee would appreciate a statement in regard to the status of the nuclear Navy. We would like to know what we are accomplishing and what we hope to accomplish in the future. What is the status quo and how can we change it or improve it?

Admiral RICKOVER. Yes, sir. First, I would like to express my great sadness that Mr. Lipscomb is in the hospital and cannot be here. I am sure you know that for many years I have had a personal affection for Mr. Lipscomb. He has always been most gracious to me and willing to listen to what I had to say. I am sure that every member of this committee joins me in hoping he will make a quick recovery and be back on the job—we need him.

Mr. MAHON. Yes. We are very much concerned and we consider Glen Lipscomb as one of the truly greats. We are very, very disturbed. We are most hopeful that before long he will be out of the hospital and back at this table.

We are going to need him this year more than usual because of the fact that Defense is being attacked from many angles. We need to present the requirements for the Defense Department clearly and as effectively as we possibly can.

Admiral RICKOVER. Mr. Chairman, I was talking from a personal standpoint. As I get older, I value more and more the personal and official friendships I have been fortunate to develop with many Members of Congress.

I did not intend my remarks to refer to the help he could give me as a Member of Congress.

Mr. MAHON. Yes, I understand. We are just concerned about his return to good health.

Admiral RICKOVER. Thank you, sir.

I am sure you have all heard of Marshall McLuhan's "the medium is the message." This may be true in television; in Government, "the budget is the message."

Mr. MAHON. Off the record.

(Discussion off the record.)

STATUS OF THE NAVAL NUCLEAR PROPULSION PROGRAM

Admiral RICKOVER. Mr. Chairman, as you requested, I will first give a brief account of where we stand overall in the naval nuclear propulsion program, then discuss the nuclear submarine program and then the nuclear surface ship program in some detail.

Mr. MAHON. I think that is good. The committee is somewhat pressed for time and will ask you to present for the record information which we don't have an opportunity to fully explore.

Admiral RICKOVER. Yes, sir. I will be happy to do so.

Through fiscal year 1969 a total of 106 nuclear submarines have been authorized by Congress. This total does not include the *Thresher* and the *Scorpion*, both lost at sea, or the *Triton* which was recently decommissioned. Nor does the total include the small submarine, NR-1, which is intended to explore the bottom of the sea. I expect the NR-1 to go to sea in August, thus completing a design and construction period of but 3 years. I believe your faith in this project will be fully justified.

Of the 106 authorized nuclear submarines, 41 Polaris and 43 attack submarines are in operation today. Another 20 attack submarines are under construction, and contracts are still to be let on the two fiscal

year 1969 SSN's. Two more attack submarines and the NR-1 should go to sea by the end of this year, which will give us 87 nuclear submarines in operation by December 31, 1969.

With respect to surface ships, we have in operation one nuclear aircraft carrier, one cruiser, and two frigates. Another carrier, the *Nimitz*, and two frigates, the DLGN's 36 and 37, are authorized and contracts have been awarded. Funds have been appropriated for long leadtime items for another *Nimitz* class carrier, the CVAN-69, and for two more frigates which will be a new design ship called the DXGN.

Our nuclear-powered submarines and surface ships have as of today steamed over 13 million miles. This figure is significant when coupled with the fact that our nuclear submarines are operating about _____ nuclear submarines. It means that we get _____. And, as you all know, experience is a great teacher. We believe we have learned _____ the quality of propulsion plant we can produce. This is one of the reasons it is essential that we not give our nuclear propulsion plant information away, so that it can fall into the hands of the Soviets. I will touch more broadly on this later because I consider it an important matter.

Some of the information I will give you today is highly classified, but it is important that this information, that the facts whatever they are, be given to the Members of Congress. Unless this is done, you will not have the information you need to make the decisions facing you. This is what I try to do when I appear before any congressional committee. I have a responsibility to tell you what the situation is and what I think. I consider it my duty to do this.

I will also do all I can to insure that the fullest possible declassification is made on this testimony so that you can present the facts to the American people. I realize how important this is, if our people are to support the programs Congress considers necessary for the security of the country. The basis of democracy is that the people are fully informed of the issues facing their Government so that they can debate them. I know that frequently some in the Defense Department have told you that the information they have given you is classified and cannot be used for public purposes. Then the next day the very same information is released to the news media. I think you have been exposed to that, sir.

Mr. FLOOD. Many times.

Admiral RICKOVER. I assure you that I will do what I can to make the maximum information available for public use.

COST OF NUCLEAR SHIP PROGRAM

It may be of interest to the committee to know how much has been spent on the nuclear ship program. The cost of the entire program to date is \$11.6 billion—from its beginning 20 years ago—and includes all nuclear ships in operation. We have obtained our entire fleet of Polaris submarines, attack submarines, and the surface ships for a total of \$11.6 billion of ship construction funds.

The Navy R. & D. funds over the past 20 years for developing the nuclear propulsion plants for this \$11.6 billion of ship construction was \$0.5 billion. In addition the Atomic Energy Commission has spent

\$1.7 billion on this program; this includes the land prototypes and all laboratory buildings and equipment. Thus, the total expenditure to the United States to date for the entire naval nuclear propulsion program—the cost of all ships, facilities, and R. & D.—has been \$13.8 billion.

We have accomplished all this for a total of \$2.2 billion in R. & D. funds over a 20-year period. I think you should bear this figure in mind when you compare this with what it costs to develop one missile or one space vehicle.

When you consider the high cost of developing new technology, you will concede that we have not done too badly, sir.

USE OF REACTORS FOR PEACEFUL PURPOSES

Mr. FLOOD. Do all these reactors have a potential for peaceful purposes?

Admiral RICKOVER. Yes, sir. In fact, as you may remember, sir, I was also responsible for building the first nuclear central station electrical plant in the United States. That is the pressurized water reactor in your State at Shippingport, Pa. That particular reactor type, which was based on our work for submarines, is now being used in many countries throughout the world. That was the first direct application of this technology for peaceful purposes. Most of the lessons—the technology of central station reactors of the light water type—come from the naval program. If you want to talk about fallout, or spinoff as they would prefer to call it, from the naval nuclear propulsion program, a great deal of the technology now being used in the civilian nuclear reactor program has come from our naval work.

REACTOR REQUIREMENTS OF THE UTILITY INDUSTRY

It is estimated that the utility industry has to date committed more than \$47 billion to building and operating light-water reactors in this country. This number is more important than just the amount of money being spent, because energy is vital to our whole type of civilization.

Mr. FLOOD. \$47 billion for what?

Admiral RICKOVER. For the utility industry. It is estimated that the utility industry will have to spend about \$47 billion during the life of the new water-cooled nuclear central stations being built to increase electricity generating capacity in this country. This includes the cost to build them, to buy the nuclear fuel to run them, and to finance their cost.

Mr. FLOOD. In the private sector, with private money?

Admiral RICKOVER. Yes, sir. This is money to be spent by the electric utility industry for central station plants already committed to nuclear power. However, the utility industry does very little of the development work. The research and development for these plants has come almost entirely from Government funds, a good deal of it from the naval nuclear propulsion program. This is so because many of the lessons we learn are applicable to both naval and civilian reactor work.

We have trained 8,800 officers and 19,000 enlisted men to operate our nuclear propulsion plants. This may interest you in light of your

previous question, Mr. Flood, since a considerable number of those who man civilian nuclear reactors have come from the naval program.

Mr. FLOOD. Is that good or bad?

Admiral RICKOVER. It is good for the country, but it is bad for the Navy. But then if it is good for the country, it should be good for the Navy, too.

Mr. FLOOD. That is a syllogism if I ever heard one.

Admiral RICKOVER. Sir?

Mr. FLOOD. That is a syllogism if I ever heard one.

Admiral RICKOVER. Is there anything wrong with that?

Mr. FLOOD. No.

Admiral RICKOVER. Thank you, sir.

Two laboratories conduct our research and development programs. One is the Bettis Atomic Power Laboratory at Pittsburgh, operated for the Atomic Energy Commission by the Westinghouse Electric Corp. It has 3,450 people; this includes 2,000 scientists and engineers. The other is the Knolls Atomic Power Laboratory, at Schenectady, operated for the Atomic Energy Commission by the General Electric Co. It has a total of 2,820 people including 1,800 scientists and engineers.

We do business with 450 companies—150 large businesses, and 300 small businesses.

Three commercial shipyards and six naval shipyards are engaged in naval nuclear ship work. Unfortunately there are no navy yards in your district in Pennsylvania, Mr. Flood.

USE OF COAL

Mr. FLOOD. No, but you are not doing coal any good.

Admiral RICKOVER. I think we are doing coal a lot of good. It costs less to mine than uranium and that's a substantial advantage. We also put your district on its toes because of the growing nuclear power industry. Competition is not going to hurt your district, sir.

Mr. FLOOD. We are in such bad shape in the anthracite area that nobody can hurt us. Don't worry about us.

Admiral RICKOVER. I believe you are going to make out all right. Ultimately we are doing you a favor because coal is too valuable for burning. It should be used for petrochemical purposes. It is too valuable to be used for power production and its value will increase with time. If you live long enough, you will reap the benefit of what nuclear power is doing for coal, sir.

Mr. FLOOD. I hope you get your hope.

Admiral RICKOVER. Thank you, sir. I hope you do, too.

Mr. MAHON. Admiral, off the record.

(Discussion off the record.)

Mr. WHITTEN. Proceed, Admiral.

PROGRESS IN DEVELOPING NAVAL NUCLEAR CORES

Admiral RICKOVER. I will now discuss the progress we are making in developing naval nuclear cores.

The first submarine core, for the *Nautilus*, cost \$4 million and lasted 62,000 miles.

The second *Nautilus* core cost \$3 million, and lasted 90,000 miles.

Presently, we are buying submarine cores for \$3.5 million which will last 400,000 miles.

So, you see, there has been a reduction of 7 to 1 in the cost per unit of energy for submarines. This does not take into account the reduction in value of the dollar over the past 15 years. If you put it on a standard dollar value basis, we are getting 14 to 15 times as much energy per dollar as we did from the first submarine core.

Mr. FLOOD. The same kind of cores?

Admiral RICKOVER. For a given reactor type the new cores ———. We design our submarines and the nuclear plant so that as we improve the cores, all we need to do is ———. We do not have to ———.

Mr. FLOOD. So the core in the last one you built is the same kind of thing as was in the *Nautilus*?

Admiral RICKOVER. ———.

Mr. FLOOD. What about the components of the core?

Admiral RICKOVER. They are quite different, sir.

Mr. FLOOD. That is what I meant.

Admiral RICKOVER. They are very much different. But the point is that, unlike many other programs, when we make the change, we don't have to rebuild the ship.

Mr. FLOOD. That is something else. I am talking about the core as a whole.

Admiral RICKOVER. The new cores are quite different. They involve 20 years' work in design, development, and experience. But the point is we are now able to operate our submarines for a minimum of 10 years without refueling.

Mr. FLOOD. What about the elements, the component parts of the core?

Admiral RICKOVER. They are ———.

Mr. FLOOD. That is what I meant.

Admiral RICKOVER. The difference is this; today when we design a new type core for an aircraft carrier, we make a minimum of 1 billion separate computations. When we built the early cores, we had no such capability to refine our designs. In recent years, we have developed whole areas of technology which permit us to design long-life cores. We have also accumulated much experience in fabricating, assembling, and operating our cores; all of this has been factored into our latest designs. As I look back, it is as though we were in the blacksmith stage in the early days. The major developments are in making cores last longer and in reducing the cost per unit of energy.

Mr. FLOOD. But there is no new element in the last core as distinguished from the first core?

Admiral RICKOVER. ———.

Mr. FLOOD. That is not the question. The question is, there is no new element in the last core to distinguish it from the first core?

Admiral RICKOVER. If I understand your use of the word "element," you are talking about the periodic table of the elements.

Mr. FLOOD. This is correct.

Admiral RICKOVER. ———.

Mr. FLOOD. That is the question I asked.

Admiral RICKOVER. There is no difference, sir.

To give you an idea of what we are doing with the new cores for the *Nimitz*, these cores will last for 13 years. Each core will have in it the energy equivalent of 800,000 long tons of oil.

Mr. FLOOD. What is magic about 13?

Admiral RICKOVER. That is the most life we could get into the core and keep it within a reasonable size. With 13 years—it will probably last a little more than that—probably 15 years—we will have to refuel it only once in the life of the ship. The figure 13 is not magical but it does have the significance I mentioned.

Mr. FLOOD. Like we say the lifetime of a ship that we launch is about 20 years, but we know it will go a little bit more.

Admiral RICKOVER. We assume 30 years. But we think with this type core we will have to refuel it only once. We are working on cores that should last the whole life of a ship. My desire has always been to design nuclear cores such that once a submarine was built, the initial core would last throughout the life of the ship.

Mr. FLOOD. If you are telling me that if you use two cores that makes the life of the ship 30 years——

Admiral RICKOVER. No, sir.

Mr. FLOOD. Then what did you say?

Admiral RICKOVER. The two cores in the *Nimitz* class carriers are necessary to provide the power needed. The two cores together will power the ship for 13 years.

Mr. FLOOD. We know what the lifetime has been down through the years as projected for the average surface ship at, say, 20 years, as a round number. What do you say for a nuclear sub, the ship herself?

Admiral RICKOVER. We figure a maximum of 30 years for the life of the ship. As the ship ages you see what happens——

Mr. FLOOD. I don't care about what happens. It is 30 years?

Admiral RICKOVER. 30 years, sir. We have many types of ships including submarines in commission right now that were built in World War II. Many of these are 25 years old right now.

Another way of describing the large amount of energy contained in the *Nimitz's* two reactors is to point out that to obtain the same energy from oil would require a train of tank cars 500 miles long.

We now have 106 nuclear cores in operation; this, I believe is probably more than all other nuclear power cores in the United States put together.

STORAGE OF NUCLEAR CORES

Mr. FLOOD. Can you build cores and put them in inventory?

Admiral RICKOVER. Yes, sir. We can do that.

Mr. FLOOD. And they don't deteriorate?

Admiral RICKOVER. No, sir. A core will last indefinitely. There is nothing in it that can deteriorate.

Mr. FLOOD. Is there any danger of fallout in storage?

Admiral RICKOVER. No, sir. Before a core is placed in a ship,——. Consequently, there is no radiation resulting from the production of fission products.

Mr. FLOOD. You are not going to get jammed up like the chemical-biological people, are you?

Admiral RICKOVER. No, sir. Since these new cores are not radioactive, they present no radiation hazard. The only precaution needed is to insure that ———. That is all. We take these precautions.

PROCUREMENT OF NUCLEAR CORES

Mr. ANDREWS. How many contractors are building cores, Admiral?

Admiral RICKOVER. Right now, ——— are building cores for the Navy. General Electric, Westinghouse, Babcock and Wilcox and Combustion Engineering are building cores for commercial nuclear plants.

Mr. ANDREWS. Does the Navy buy on a competitive basis?

Admiral RICKOVER. Yes, sir, primarily competitive. ——— since we have ——— suppliers of naval cores, we must make sure ———. We do a considerable amount of negotiating, but we limit the profits, sir.

Mr. ANDREWS. How long does it take to produce a core?

Admiral RICKOVER. About ——— sir.

Mr. FLOOD. When you build a core, you say you have ——— contractors; can contractor A by himself without using a lot of subcontractors or satellite plants make a core by himself?

Admiral RICKOVER. No, sir, he cannot. He must use subcontractors for some materials and various structural parts.

Mr. ANDREWS. What is the size of a core?

Admiral RICKOVER. The core for a submarine will be about ———.

COST OF NUCLEAR CORES

Mr. ANDREWS. You said one core costs about \$3,500,000?

Admiral RICKOVER. For submarines, yes, sir.

Mr. ANDREWS. What will a core for the carrier cost?

Admiral RICKOVER. It will cost more because it is much larger and generates many times the power and energy. They will cost on the order of \$20 million each.

Mr. ANDREWS. How many miles did you get on the first Enterprise cores?

Admiral RICKOVER. About 200,000 miles, I believe. The first core in the *Enterprise* lasted for 3 years. The ship will enter the yard for a second refueling next month, after 4 years operation on the second set of cores. The new cores going in will last more than 10 years.

Mr. FLOOD. How do you refuel a core?

Admiral RICKOVER. The old core is removed ——— and placed directly into a lead-shielded shipping container; then the new core is put in.

DISPOSAL OF USED CORES

Mr. WHITTEN. In that connection, I sit on the Public Works Subcommittee where we deal with the Atomic Energy Commission. It is somewhat frightening to learn how long we have to protect ourselves from used materials or waste materials, which result from depleting these cores as well as other types of radioactive elements that we use in this field. How long will that used core have to be kept in that leaded container or in some other material? I believe the testimony by the Atomic Energy Commission is that they put it in a tank, and that tank in another tank. They are now investigating

the possibility of digging holes in rocks and the estimate is that you will have to keep the waste that way for some 600 years.

Admiral RICKOVER. We don't do it that way, sir. Our depleted cores go to a special facility, called the expended core facility, at the naval reactors facility in Idaho. The cores are cut apart, and examined. We then turn the fuel assemblies over to the Atomic Energy Commission's Idaho chemical processing plant. Here, most of the ——— core. We use about ——— The AEC then treats the radioactive waste from the structural materials as they would treat waste from cores used by any other organization.

Mr. WHITTEN. In other words, they handle your used products?

Admiral RICKOVER. Yes, sir. The AEC's processing plants reduce the volume of this radioactive liquid waste by evaporation and other processes. The waste is later turned into solids so that it can not leak out of storage tanks, as liquids might. Final disposal is in special AEC controlled burial grounds.

Mr. ANDREWS. Off the record.

(Discussion off the record.)

Mr. WHITTEN. You may proceed.

NUCLEAR SUBMARINES

Admiral RICKOVER. I would like now to discuss nuclear submarines if this is agreeable to the committee, sir.

PURPOSE OF SUBMARINES

Mr. FLOOD. Before you do that, of what value or what use is a submarine to anybody, anyhow?

Admiral RICKOVER. Mr. Flood, a few days ago I was introducing Mr. Holifield—

Mr. FLOOD. Is that Congressman Holifield of California?

Admiral RICKOVER. Yes, sir. I was introducing him at the commissioning ceremony of the *Narwhal*, our latest nuclear attack submarine, in New London. My introduction came just after the chaplain had finished giving the benediction. The chaplain, as chaplains will, said the purpose of the *Narwhal* was to spread peace, or words to that effect. So in my introduction I stated that when I was a young officer, some 40 years ago, a question was asked on a promotion examination: "What is the purpose of 16-inch guns on a battleship?" A young officer, not knowing the proper textbook answer replied, "To strike fear and terror into the hearts of the enemy." I said, "Ladies and gentlemen, that is my conception of the *Narwhal's* purpose—to strike fear and terror into the hearts of the enemy."

Mr. FLOOD. I couldn't get a better answer.

Off the record.

(Discussion off the record.)

SOVIET THREAT

Mr. SIKES. Admiral, last year you presented to this committee the assessment of the Soviet submarine threat and what we are doing about it. We continue to hear about the strides being made by the Soviets in this field. I have been greatly concerned with what appears

to me absolute certainty that the Soviets are concentrating on quiet and fast submarines, that they are emphasizing completely modern submarines, and that they are manufacturing a substantially larger number of modern submarines than we. Now these are facts. If they are facts, that I think should be of very great interest to the American public and to the Congress and the Department of Defense. Now, sir, would you please bring us up to date on what the threat looks like today?

If I have overstated it, I want you to tell us that.

Admiral RICKOVER. Mr. Sikes, the testimony I am about to give is classified so that I would ask the committee to regard it as such. As I previously stated, I will make sure it receives the maximum permissible declassification, so that you may use the information.

There is little doubt that the Soviets have decided that their navy is to occupy a new and predominant role in their military strategy. It is also clear that the submarine force has become the major element of their navy and that the Russians have established, as a matter of national priority the design, construction, and operation of a submarine fleet second to none. They have stated this publicly.

SOVIET EMPHASIS ON SUBMARINES

To substantiate this statement, let me read pertinent excerpts from an article written in February 1967 by Admiral S. Gorshkov, the Commander in Chief of the Soviet Navy:

During the first post-war decade the combat activity of Soviet and foreign submarines was analyzed in order to find new ways and means of utilizing this class of warship. That was when the Soviet Navy worked out new tactics in the use of submarines, the methods of directing them and the principles underlying their cooperation with other arms of the Navy in action.

The leading capitalist powers at first began building up naval strike forces on the basis of aircraft formations, having in mind that each warship would carry a division of nuclear-carrying jet aircraft having a large radius of actions. The carrier-based strike formations were intended chiefly for the delivery of nuclear strikes against objectives deep in Soviet territory. Later the navies of those powers were augmented with nuclear-powered submarines armed with ballistic missiles.

Soviet military theory adopted a different point of departure. The experience of the Second World War had shown us that the battle of Midway Island in 1942 marked the decline of battleships. An analysis of the new combat potentialities of the different arms of the Navy at the dawn of the era of missiles, and nuclear weapons led us to the conclusion that the irreversible decline of the importance of aircraft carriers had also begun.

The navies of the imperialist countries are trying to use aircraft carriers to carry out the main tasks in local wars against the people of economically underdeveloped countries which do not possess modern means of armed struggle. True, in the West aircraft carriers continue to be regarded as important weapons in a missile and nuclear war as well. Here sight is lost of the important circumstance that the combat potential even of nuclear-powered aircraft carriers is inferior to the strike potentials of submarine and air forces.

In the mid-fifties, in connection with the revolution in military affairs, the Central Committee of the CPSU determined the ways and means for the development of the Soviet Navy and also its role and place in the Armed Forces as a whole. The line was steered toward the building of an ocean-going navy capable of carrying out strategic tasks of an offensive nature. The leading place was accorded to submarines and naval air arm equipped with missiles and nuclear weapons.

A navy, which for a long time could operate only in seas adjoining its own coast and accumulated experience in a continental war, during which it carried out chiefly tactical assignments in cooperation with land forces, now emerged

on oceanic expanses. In this connection, it needed absolutely new tactics, a new operational art and a theory of strategically employing its forces.

As the flow of new weapons increased it became more and more obvious that fundamentally new ways and means of utilizing naval forces had to be charted which would more fully take into consideration the changes in the Navy's material and technical facilities so that they would more fully satisfy the requirements of a missile and nuclear war. The revolution in military affairs has now spread to all spheres of naval art. With the discarding of obsolete views and concepts, in the process of active and bold scientific quests for ways and means of utilizing fundamentally new forces and weapons.

Those are comments which should be taken seriously.

LESSONS OF HISTORY

For many years people have written books on the origin of World War I. The generally accepted reason is that Germany, the preeminent land power, was trying to overtake Britain, the preeminent naval power. I mention this because the very same situation obtains today.

Russia, the preeminent land power is also trying to become the preeminent naval power, at the expense of the United States. I make this comparison because history is one of our best teachers in the affairs of nations.

Mr. Flood. The Russians have a squadron of ships in Cuba now.

Admiral Rickover. Yes, but that is but a small example of what they are doing on a worldwide basis.

My personal opinion is that they are very misguided in attempting to become the dominant land and naval power because this inevitably will bring about great strains between the United States and the Soviet Union. But it is a historical analogy worth considering.

Certainly their intent is unmistakably clear. Admiral Gorshkov said even more recently: "The flag of the Soviet Navy now flies proudly over the oceans of the world. Sooner or later the United States will have to understand that it no longer has mastery of the seas." Just a few weeks ago the Russians announced a projected 50 percent increase in the size of their merchant fleet. While they are already far ahead of us in numbers of modern merchant ships, this increase will put them ahead of us in total merchant tonnage. These facts should be weighed when assessing the Soviet strength. Their military power is rapidly expanding.

Today when one says something like this, he becomes controversial and his statements are questioned, particularly by many of our intellectuals. It is as if they would like to resort to the age-old method of chopping off the head of the bearer of bad news. They want painless answers. Not that I mind, but it is a fact that I am being subjected to this because of the views I have expressed.

Unfortunately, although they have an unshakable certainty that they are right, I find that many intellectuals live in such an uncommon atmosphere that commonsense can rarely reach them. They simply refuse to face facts as they are.

In 1968, Mr. Khrushchev said, "No treaties or agreements between the states can overcome the radical contradictions that exist between the two social systems."

I find no reason to think that Mr. Kosygin or Mr. Brezhnev would dissent from this. The Soviets have never confused peace with pacifism.

I happen to be a very peaceful person. I have never hunted or fished.

When I speak of what I feel this country needs to do militarily, I am not talking from a personal standpoint. I am talking as a student of history who sees the inevitability of the strong conquering the weak irrespective of the moral issues involved. Our assessment of a situation should rest on whether it is growing better or growing worse—not whether it is absolutely good or absolutely bad. If history teaches anything, it is surely that weakness invites attack; that it takes but one aggressor to force the world into war against the desires of peace-loving nations, if the former is militarily strong while the latter are not.

INTELLIGENCE PROBLEMS

Mr. WHITTEN. I have had some conversations with folks who do deal with intelligence. They, in turn, are worried at the present time with the fact that they believe our intelligence community, the various elements of it, are jockeying for positions in the sun to the point that we are not wholly interchanging and bringing together the sum total of intelligence. In connection with your statement about what is being done with respect to this, that, and the other thing, of necessity you are bound to lean on sources of intelligence information. Do you have trouble getting this information or do you see any evidence of the fact of what we do obtain through Army intelligence, Naval intelligence, Air intelligence, Defense intelligence, and Central Intelligence Agency, plus many others—

Admiral RICKOVER. I understand your question, sir.

From my experience, particularly in the last 2 years, I believe that I have been getting a great deal of the information that is available. Antagonism and jealousy do, of course, exist in the intelligence community, as they do in all organizations. This is not entirely bad; it can lead to healthy competition. However, it often interferes with interchange of information between the various agencies and it becomes difficult to obtain a consensus as to what the information means.

Mr. SIKES. Can you compare their submarine construction program quantitatively and qualitatively with ours?

Admiral RICKOVER. Yes, sir, to the extent of our knowledge of their program ———.

Now I would like to briefly tell you the lessons we learned concerning submarine operations in World Wars I and II.

SUBMARINES IN WORLD WAR I

As you are well aware, we came very close to losing both wars because of submarines. In 1917-18, the worst years of the World War I submarine war, the average number of U-boats at sea was 47. These 47 U-boats sank about 1 million tons of shipping per month in early 1917. During this period 10-15 of the 47 U-boats were stationed around the British Isles. In April 1917 these 15 submarines sank 155 ships, totaling 500,000 tons.

At one time in April 1917, there were only 4 days of munitions and food remaining in France for the Allied armies. Yet these submarines could operate to a depth of but 250 feet, they could make only 8 knots submerged for 2 hours, and they could remain at sea only 30 days.

In World War I German submarines sank 5,700 Allied ships, totaling more than 11 million tons.

SUBMARINES IN WORLD WAR II

During World War II, by the end of 1942, the Germans had about 65 submarines at sea at any one time in the Atlantic, with 20 on station off the U.S. east coast. Their average time at sea was 40 days, of which only 21 was on station. Yet, in June 1942, these 20 submarines sank 69 ships totalling 365,000 tons in the Western Atlantic.

During World War II German submarines sank 2,759 merchant ships and 66 Allied warships of destroyer escort size or larger—including six aircraft carriers—for a total of more than 14 million tons.

Mr. SIKES. I think we are generally familiar with that.

Admiral RICKOVER. When the submarines were able to snorkel, that one factor tremendously increased the antisubmarine warfare problem, even though they were diesel submarines. In World War II, and this is one fact to be remembered, 20 percent of the entire Allied war effort was devoted to antisubmarine warfare. That will give you some idea of the magnitude of the problem.

Today the submarine is a far more potent weapon. This is true for many reasons. Nuclear power has permitted it to become a true submersible and to remain within the protection of the ocean depths for indefinite periods. Submarine-launched missiles have made it a serious threat to all surface ships. The Polaris-type missile has made it a strategic weapon system. One of our nuclear submarines, the *Triton*, steamed 88,000 miles continuously submerged.

OPERATIONS UNDER ICE

Recently two of our submarines surfaced from beneath the ice at the North Pole. They are now able to get through as much as _____ feet of ice and we are developing ways to get through _____ feet. This, again, would open another dimension of naval operations. We will be able to operate ships in the Arctic on a routine basis.

Mr. FLOOD. Wait a minute. That won't stand up. What do you mean, through _____ feet of ice?

Admiral RICKOVER. Yes, sir.

Mr. FLOOD. How did they do that?

Admiral RICKOVER. They have means of surfacing right through the ice. I will send you a picture of it. They steam under the ice and if they wish to surface, which they have done regularly—

Mr. FLOOD. How?

Admiral RICKOVER. They have what they call an ice suit.

Mr. FLOOD. What is that?

Admiral RICKOVER. Special equipment for getting through the ice.

Mr. FLOOD. You mean the individual sailor or the ship?

Admiral RICKOVER. The ship. The individual ship can come up right through the ice. We call it an ice suit. It is the name for the equipment that enables it to come up through the ice.

Mr. FLOOD. All right. Is it a mechanical thing?

Admiral RICKOVER. Yes, sir, it is mechanical.

Mr. FLOOD. It does not use nuclear power?

Admiral RICKOVER. No, sir. Any submarine that is able to get there would be able to do this, but, of course, only nuclear submarines can get there.

Mr. ANDREWS. Ours have done this, have they not?

Admiral RICKOVER. Yes, sir. We have done it many times. Two of our submarines did it last month.

Mr. WEGNER. It is really very simple. The ——— and then, using the submarine's own buoyancy, they rise and break through the ice.

Admiral RICKOVER. They can do it now through ——— feet of ice, and they may soon be able to go through as much as ——— feet of ice.

VULNERABILITY OF TANKERS

Mr. MAHON. All right. Now go on with your statement.

Admiral RICKOVER. Another point about the relation between World War II and the present is that the United States lost over 130 tankers in the Atlantic campaign, mostly due to German submarines. By mid-1942 the situation had become desperate. So many tankers had been and were being sunk that the supply of military fuel to Europe and the Pacific was threatened.

The 130 tankers lost is significant. During World War II we had a large number of small tankers. Most were of 10,000 to 15,000 tons full load with the largest about 25,000 tons. Therefore, sinking a tanker at that time did not have anywhere near the impact that would be the case if one of the large tankers of today were to be sunk. Presently, many tankers are over 100,000 tons and there are plans to build tankers of 500,000 tons and larger. One such tanker carries many times the oil of the World War II tankers; also they offer a much larger target and so they can be sunk more easily.

In addition, the use of oil in military operations has tremendously increased over what it was in World War II. This is going to pose a very serious problem. If we have to depend on foreign oil—which we do to a great extent—it is going to put a great burden on the energy resources of the United States.

Mr. FLOOD. But how are you going to kill the subs?

Admiral RICKOVER. How are you going to kill them?

Mr. FLOOD. You are talking about saving the oil fleet. OK. How are you going to do it?

Admiral RICKOVER. That is a very difficult problem.

Mr. FLOOD. That is why I asked the question.

Admiral RICKOVER. One of the best means of killing submarines is by the use of other submarines. That is why submarines are important from both an offensive and a defensive standpoint. The nuclear submarine is generally believed to be the best antisubmarine weapon. Of course, we also have other means of tracking and killing submarines in our antisubmarine warfare forces.

Mr. FLOOD. That is what we call killer subs?

Admiral RICKOVER. Yes, sir. An attack or killer submarine is both an offensive and defensive weapon.

STATUS OF RUSSIAN SUBMARINE FLEET

I would like now to give you the current status of the Russian submarine fleet. It presently has about 270 attack submarines of which approximately 20 are nuclear powered. The remainder are diesel powered. They have about 60 cruise missile-firing submarines, of which some 30 are nuclear powered. They also have 45 ballistic-missile-

firing submarines, about 15 of which are nuclear powered. Their total submarine force is about 375.

Our submarine force is presently composed of 104 attack submarines, of which 43 are nuclear powered and 61 are diesel powered.

Mr. FLOOD. That is a whole switch in the Russian naval concept of the submarine as far as they are concerned because the Russian subs were practically coastal defenders, were they not?

Admiral RICKOVER. That is correct, sir. During World War II, they were essentially a coastal defense force. Their fleet is now capable of worldwide operations.

Mr. ANDREWS. How many of that 375 total are nuclear powered?

Admiral RICKOVER. A total of about 65. The U.S. submarine force is presently composed of 104 attack submarines, of which 43 are nuclear powered and 61 are diesel powered. Including the 41 nuclear-powered Polaris submarines, our total force is 145 operational submarines. These numbers do not include the oceanographic deep submergence research vehicle, the NR-1.

All Soviet submarines are post-World War II and all are believed to be less than 15 years old. Only 98 of the total 145 U.S. submarines are post-World War II construction and more than half of our entire submarine fleet is over 15 years old. Eight of the early U.S. nuclear submarines are no longer considered firstline ships.

Mr. FLOOD. Can every one of those 375 Russian subs, regardless of class or category, be interoceanic, worldwide?

Admiral RICKOVER. Some of the older diesel units are limited in range. But in general, I would say that all but a few are capable of worldwide operations.

The Russians have scrapped not only all the submarines that were built during World War II but they have even scrapped ships built subsequent to World War II.

Mr. FLOOD. By ships you mean subs?

Admiral RICKOVER. Yes, sir. Submarines. I am talking only about submarines at the present time.

Compared to the Soviet total of 375 submarines we have only 145. ———. In numbers alone they have an advantage of 3 to 1.

In April 1968, the United States had a net advantage of ——— more nuclear submarines than the Russians. But between April 1968 and June 1969, this advantage had decreased to ———.

Mr. FLOOD. Do the Russians have a history of fighting submarines against anybody?

Admiral RICKOVER. Yes, sir. They did some minor fighting in World War II.

Mr. FLOOD. Minor?

Admiral RICKOVER. Yes, sir.

Mr. FLOOD. They have no tradition or experience fighting subs.

Admiral RICKOVER. They may not have had the tradition——

Mr. FLOOD. They don't.

Admiral RICKOVER. They do not have the tradition.

Mr. FLOOD. Or the experience?

Admiral RICKOVER. But the people who man our submarines today don't have much tradition either.

Mr. FLOOD. Now, wait a minute, wait a minute. The U.S. Navy has an experience, a history, a tradition of submarine warfare since the Civil War,

Admiral RICKOVER. Let me say this about their entire Navy. You can go back as recently as 5 to 6 years ago and you will find our Chief of Naval Operations saying that the Russians were not a seagoing people, that they were land-oriented. If you ask that man what he thinks today he will tell you quite a different story. He is now worried over what he sees the Russian Navy and their submarines doing.

Mr. FLOOD. I am not talking about Russian surface ships. They have a tradition and history of naval warfare, but they have absolutely none in submarines; is that right?

Admiral RICKOVER. You are correct, sir. They do not have much of a tradition in submarines. I would rather have a lot more submarines and less tradition. Tradition in military matters can be a hindrance, too.

Mr. FLOOD. I don't care what you would rather have. I just asked the question.

Admiral RICKOVER. You are right, sir.

I will repeat, in April of 1968 we had _____ more nuclear submarines than the Russians, but in 15 months it has been reduced to _____. If _____ our advantage will only be _____. They have narrowed the gap from _____ in little more than a year.

In the United States a total of 106 attack submarines and Polaris submarines have been authorized and funded through fiscal year 1969. Of these, 43 attack and 41 Polaris submarines have been completed through June 1969. There are 22 more submarines presently under construction, authorized or contracts let.

By next year the Russians will probably have more nuclear submarines than we. Their total number, nuclear, and conventional will be about three times as many as we have.

SOVIET MISSILE SUBMARINES

Mr. FLOOD. How many, if you have the figures on the Russian submarines, of any class as distinguished from their Polaris-type subs, have surface-firing missiles?

Admiral RICKOVER. They have 60 cruise missile-firing submarines, of which 30 are nuclear-powered.

Mr. FLOOD. What is the average range of one of those cruise missiles off of our coast?

Admiral RICKOVER. About 400 miles, sir. By mid-1974, the year the United States should put into operation the last submarine currently authorized, the total U.S. nuclear submarine inventory will be 106 nuclear attack and Polaris submarines. At that time it is estimated _____ that the Soviets will have about 135 nuclear submarines. However, we have already seen a production of _____ new units in the last 15 months. If this rate is continued, the Soviets could conceivably have _____ nuclear submarines by mid-1974. Using this number, the Soviets would possess a net advantage in nuclear submarines of as many as _____. The total submarine force levels are not expected to change very much in either the Soviet Union or the U.S. since with the introduction of newer units, older units are deactivated.

SOVIET SUBMARINE SHIPYARDS

Mr. FLOOD. How many shipyards do they have on either coast building subs alone?

Admiral RICKOVER. They have ——— yards engaged in building submarines. The Soviets have expanded and modernized their nuclear submarine construction yards to where they now have the largest and most modern submarine yards in the world. These yards use covered sheds to permit work to continue regardless of weather and they also have a ———. These yards employ modern production line techniques.

Original intelligence estimates were that with this expansion, the Soviets would produce some 20 nuclear submarines a year. However, as I pointed out ——— the Soviets produced ——— new submarines ———. It is now estimated that on a "crash" basis with no constraints they could build ——— nuclear submarines annually. At present, while the Poseidon conversions are going on, the maximum U.S. capacity to build nuclear submarines is about ——— per year. Upon completion of the Poseidon conversions, about ——— the best we could do is ——— a year. The Soviets have ——— times the construction capacity we do. Already, one Soviet shipyard has produced ——— new Polaris type submarines—a rate of ——— a year ———.

Mr. MAHON. Off the record.

(Discussion off the record.)

Mr. MAHON. Go ahead.

Admiral RICKOVER. The situation is worse than what is revealed by just a comparison of numbers of submarines. The Soviet increase of ——— new submarines in the last 15 months is due entirely to the production of several new submarine design types, a feat far exceeding anything that has ever been done by us or by anyone else in all naval history.

SOVIET SUBMARINE DESIGN EFFORT

In support of this work the Soviets have a large organization devoted to designing and building submarines.

For example, they have a naval organization headed by three Vice Admirals who do nothing but design and build submarines. They are not responsible for fighting managers, budget battles, training officers and men, or operating their ships.

Match this strong and effective organization against what we have in the United States. Within the Navy Department the responsibility for submarines rests with a Rear Admiral who is in the third level of command. There is no one officer reporting directly to the Chief of Naval Operations who is responsible for our vital submarine program. This is not the case for the antisubmarine warfare program or the naval air program and, in my opinion, it should not be the case for submarines. Last year, when I testified before the Senate Preparedness Investigating Subcommittee, I recommended upgrading the Navy's senior officer for submarines to the position of Deputy Chief of Naval Operations for Submarines. This would give the submarine program a director similar in rank and authority to the Deputy Chief of Naval Operations for Air.

I believe such a move is essential if we are to begin to match the national priority the Soviets have given their submarine program.

Mr. MAHON. Has anyone acted on your suggestion?

Admiral RICKOVER. No, sir. Not as yet.

Mr. MAHON. Proceed.

Admiral RICKOVER. In a recent letter to Senator Pastore, I mentioned that the University of Leningrad now has over 7,000 students studying naval architecture and marine engineering. That is the number in just one university. In comparison, about 400 are studying these subjects in the entire United States. A large percentage of their students are employed in shipyards upon graduation. Many welders, mechanics and electricians have been diverted to shipyards from other civilian industries.

While we cannot specifically count the number of Soviet scientists and engineers devoted to naval work, it is apparent that they have created a broad technological base. They have committed extensive resources to support development of their submarine force. When you create an organization that can produce several new design submarines in one year, you have acquired a tremendous national asset. One can only imagine what this group is capable of producing in the next 5 years. We on the other hand have turned out only one new submarine design in 10 years.

I testified before the Joint Committee on Atomic Energy and the Senate Preparedness Subcommittee last year, that in my opinion the Russian submarine force is superior to ours. Certainly what has happened in the past year has substantiated my statement.

Mr. FLOOD. You wrote a letter to Senator Pastore?

Admiral RICKOVER. Yes, sir. This was a letter I wrote to him at his request concerning where we are, where we are going, and what needs to be done in a military way. I have also recently written to Senator Jackson regarding my views on the ability of our Polaris submarines to survive a planned attack by Soviet antisubmarine forces in the mid-1970's. Both of these letters have been published in the Congressional Record.

Mr. FLOOD. Could we have those inserted in the record.

Admiral RICKOVER. Yes, sir.

(The information follows:)

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., April 25, 1969.

THE HONORABLE JOHN O. PASTORE,
U.S. Senate,
Washington, D.C.

DEAR SENATOR PASTORE: In your letter of April 15th, you asked me to give an estimate and an opinion as to where we are and where we are going and what needs to be done in a military way in these times of turmoil and peril. There is, as you point out, a division of opinion among the American people regarding the necessity of reinforcing our military strength.

The first point I would like to make is that in judging between conflicting views on this matter, the deciding factor must be their relevance to the world as it is, not as we would wish it to be. Granted the hideousness of modern war, can we deduce therefrom that mankind is now wise enough to forgo recourse to arms? A look at history should put us on guard against those who claim that humanity has now reached a state where the possibility of armed aggression can be safely disregarded in formulating national policy.

I am reminded of the intense opposition to the Navy's 15-cruiser bill in 1920. It was argued by many that with the signing of the Kellogg Peace Pact the year before it was no longer necessary to build new warships. And this in light of the lessons of World War I which erupted despite the various Hague peace treaties. These ships were of inestimable value in helping us win World War II. The war itself was prolonged because Congress—heeding the "merchants' of

death" argument—in 1030 prohibited shipment of war materials to Britain and France.

Then, too, weight must be given to the credentials of those propounding opposite views. Are they public servants charged with the awesome responsibility to secure our country against foreign conquest, or are they private individuals not accountable for the consequences of their opinions, who feel free to express their personal abhorrence of war and to agitate for a reduction of the financial burden military preparedness imposes on the taxpayer? Would the majority of the electorate accept their argument that, given our unmet domestic needs, we cannot afford an effective defense position vis-a-vis our potential adversaries? Or that war is so horrible that it is better to suffer defeat than to fight?

As for the high cost of preparedness, it is in fact no greater proportional to total U.S. output than 10 years ago—8.8 percent of total U.S. goods and services. Omitting the costs of the Vietnam war and allowing for inflation, our Armed Forces have less buying power today than a decade ago. In the Soviet Union, on the other hand—according to the Annual Report of the Congressional Subcommittee on Foreign Economic Policy issued last June—resources have been diverted from the farm sector to defense, where outlays rose dramatically in 1966-67, after remaining static since 1962. The report talks about their new pre-occupation with national security. And you must bear in mind that actual war costs absorb but a small portion of their expenditures while we are spending some \$2½ billion a month in Vietnam.

If history teaches anything it is surely that weakness invites attack; that it takes but one aggressor to plunge the world into war against the wishes of dozens of peace-loving nations if the former is militarily strong and the latter are not. Yet there are those who deprecate the need to maintain military supremacy or at least parity with the Communist empires, on the grounds that other nations have accepted a decline from first to second or third rank and that we ourselves for most of our history were militarily a second-rate power yet secure enough within our borders. They forget that we then profited from the Pax Britannica, even as the former great powers of Europe who have lost their defense capability enjoy political freedom today only because we are strong enough to defend them and ready to do so. What it means to be weak and without American protection should be evident to all as we observe the tragic drama of Czechoslovakia "negotiating" with Russia the continuing subjugation of her people.

As a lawyer, you are familiar with Blackstone's statement that security of the person is the first, and liberty of the individual the second "absolute right inherent in every Englishman." Just so, the first right of every American is to be protected against foreign attack, and the first duty of Government is to keep our Nation alive. Given the world situation, this calls for maintenance of a defense capability which is adequate to discourage potential aggressors. Said President Nixon, in discussing the Cuban missile crisis, "It is essential to avoid putting an American President, either this President or the next President, in the position where the United States would be second rather than first or at least equal to any potential enemy * * * I do not want to see an American President in the future, in the event of any crisis, have his diplomatic credibility be so impaired because the United States was in a second-class or inferior position. We saw what it meant to the Soviets when they were second. I don't want that position to be the United States in the event of a future diplomatic crisis."

There can surely be no doubt that the overwhelming majority of the American people are opposed to relinquishment of our defense capability, recognizing full well that there will then be no one left to prevent the takeover by Communist power. Whether one takes the optimistic view that a permanent East-West detente can be negotiated, or the pessimistic view that ultimately we shall have to fight for our liberties, this Nation has no future if it allows itself to be out-matched militarily.

To turn now to specific matters currently in dispute. There is the ABM system which is under heavy fire on grounds that it (a) will escalate the arms race and (b) will not work. It should be stressed that the Soviets have had their own version of the ABM for several years without inducing us to expand our military power. Just as the Soviet ABM version has not added to the Soviet threat, so our own ABM would not add to ours. The Russians have been singularly silent in this respect; the outcry has come mostly from those in this country who habitually apply a double standard when adjudging military developments in the United States and the U.S.S.R. One must ask how can our defensive capability be considered provocative, while theirs is not? Is there not something deeply disturbing when one observes scientists, formerly holding responsible positions in govern-

ment, advocate policies directly contrary to those they supported when in office? It must not be forgotten that many of our most prestigious scientists were bitterly opposed to development of the H-bomb. Where would we be today had not the Congressional Joint Committee on Atomic Energy and President Truman—who had the responsibility for the safety of the United States—disregarded their advice?

As for the assertion that the ABM cannot be made to work, I must disagree. If there is one lesson I have learned in the many years I have devoted to the development of nuclear propulsion plants it is that, given the soundness of a theoretical concept, it can, with drive and imaginative engineering be made to work.

Contrariwise, for a theoretical concept to be translated into reality it must be worked on. Research alone—no matter how prolonged—will not do it. The very act of developing the concept through detailed engineering work produces improvements in the original concept—improvements which would have been neither obvious nor possible without such actual engineering work.

The Soviets are just as adept in research and development as we are. They have amply proved this by their progress in space, in missiles, in aviation, in military equipment, in nuclear submarines. They know full well from their own experience that with research alone—without development engineering—our ABM system or any other system would not be meaningful and could be discounted. For this reason we must guard against those claiming that we can limit ourselves to research—that research alone will suffice.

You also asked me to comment on what needs to be done in these times of turmoil and peril. As I am more familiar with the threat posed by the Soviets to our naval power, I would like to confine myself to this area, and specifically to submarines. But what I say here is valid for our land, sea, and airpower as well.

The Soviet Union is embarked on a program which reveals a singular awareness of the importance of seapower and an unmistakable resolve to become the most powerful maritime force in the world. They demonstrate a thorough understanding of the basic elements of seapower: knowledge of the seas, a strong modern merchant marine, and a powerful new navy. They are surging forward with a naval and maritime program that is a technological marvel.

At the end of World War II, the Soviet Union had a fleet of 200 diesel-powered submarines. They then embarked on a massive building program, producing over 550 new submarines through 1968, at least 65 of which are nuclear powered. During the same period, the United States built 99 submarines, 82 of them nuclear powered. The Soviets have scrapped or given away all their World II submarines as well as some built since. They now have a new submarine force of about 375; we have 143, which includes 61 diesel submarines most of which are of World War II vintage. Thus the Soviets have a net advantage of about 230 submarines. It is estimated that by the end of 1970 they will have a numerical lead in nuclear submarines.

To achieve this the Soviets greatly expanded and modernized their submarine building facilities. Just one of their numerous submarine building yards has several times the area and facilities of all U.S. submarine yards. They use modern assembly line techniques under covered ways, permitting large scale production regardless of weather conditions.

In the single year 1968, the Soviets put to sea a new type ballistic missile submarine as well as several new types of nuclear attack submarines—a feat far exceeding anything we have ever done. In looking to the future, it is estimated that by 1974 they will add about 70 nuclear-powered submarines to their fleet, whereas we will add but 26—further increasing their numerical superiority. In the case of the ballistic missile submarine the Soviets have undertaken a vigorous building program to surpass our Polaris fleet of 41. They have completed seven of the new Polaris-type submarines, and have the capability to turn out one a month. We have no Polaris submarines under construction or planned. We must assume that by the 1973-74 time period they will be up to us.

Numerical superiority, however, does not tell the whole story. Weapon systems, speed, depth, detection devices, quietness of operation, and crew performance all make a significant contribution to the effectiveness of a submarine force. From what we have been able to learn during the past year, the Soviets have attained equality in a number of these characteristics and a superiority in some.

In order to achieve the results so far attained in all areas of modern technology the Soviets had to develop their most important resource—technical and sci-

entific personnel. The Soviet educational program enjoys highest national priority. The statistics on the total numbers of Soviet degree graduates are extremely impressive. The U.S. National Science Foundation data indicates that in 1966 alone, 168,000 engineers were graduated; the United States, on the other hand, produced but 36,000. With specific application to the Navy, the Leningrad Shipbuilding Institute, just one naval institute of several, had over 7,000 students in 1966 studying naval architecture and marine engineering. I doubt we had over 400 enrolled in these subjects in all U.S. colleges.

While we cannot specifically count the number of Soviet scientists and engineers devoted to naval work, it is apparent that they have created a broad technological base. They have committed extensive resources to support development of their naval forces. The steady build-up of the Soviet submarine Navy from an ineffective coastal defense force at the end of World War II to the world's largest underseas navy today deserves admiration; also it should deeply worry every American. By the end of this year we face the prospect of losing the superiority in nuclear submarines we have held for many years. The threat posed by their submarine force—with their new ballistic and cruise missile launchers and new attack types, is formidable. If more sophisticated types are added in the near future, as is likely considering their large number of designers and their extensive facilities, the threat will rapidly increase.

The Soviets have frequently announced their intent to be the preeminent world power. Why do we not believe them? Hitler in "Mein Kampf" plainly announced his intent to dominate the world. We did not believe him either—until it was nearly too late. Admiral Gorshkov, commander in chief of the Soviet Navy, said recently: "The flag of the Soviet Navy now flies proudly over the oceans of the world. Sooner or later, the United States will have to understand that it no longer has mastery of the seas." And just a few days ago the Russians announced a projected 50 percent increase in the size of their merchant fleet. These facts should be weighed when assessing the judgment of those who argue for a reduction of American military power while the Soviet military power is rapidly expanding.

The bearer of bad news is always punished. In ancient times, he might be put to death. Today he becomes "controversial" and unpopular. But if there is one subject on which the American people must know the truth, however unpalatable, it is our military position vis-a-vis the Soviets. I believe no one can better inform them than Members of the Congress—who have such close ties to their constituents.

I suggest that by keeping secret our knowledge of Soviet strength at this time we may lose more than by confiding the truth of the danger we face to the American people.

Respectfully,

H. G. RICKOVER.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., June 12, 1969.

THE HONORABLE HENRY M. JACKSON,
U.S. Senate, Washington, D.C.

DEAR SENATOR JACKSON: This is in response to your letter of June 5, 1969, asking my views concerning the ability of our Polaris submarines to survive a planned attack by Soviet antisubmarine forces in the mid-1970's time frame.

Let me first say that based on the best evidence available, I believe that today our Polaris submarines are safe from a massive, neutralizing blow. Further, I am not aware of any valid information indicating that the Soviets possess a means to track and destroy our Polaris submarines while they are on station. However, there is no assurance that this situation will prevail for long.

There is, in fact, evidence that the Soviets are actively engaged in a determined effort to acquire the capability to neutralize or destroy our Polaris force. They have developed and they continue to develop faster and quieter submarines. They are experimenting in all phases of submarine and antisubmarine warfare—we are not. In fact, during the past year alone they have developed several new types of nuclear submarines; we have developed only one new type in 10 years. It is clear that a major objective of their naval programs is to invalidate our own Polaris system.

Given the recent Soviet progress in undersea warfare and the sheer magnitude of their nuclear submarine program, the conclusion is inevitable that,

unless we are willing to match their effort, they will surpass us in this field during the 1970's.

Of course, in the present era of rapid technological change accurate prediction of future military developments is difficult, if not impossible, even for such a relatively short period as 5 to 10 years. It is equally difficult to predict the outcome of future military engagements, since these are dependent on successful exploitation of the latest technological advancements. All we can do is learn what we can of the progress being made by other nations in the areas related to submarine and antisubmarine warfare and then to compare this with our own progress.

The Soviets now have by far the largest submarine force in the world—about 375 submarines, all built since World War II. We have 143, including 61 diesel submarines most of which are of World War II vintage. Thus, they have a net advantage of about 230 submarines. It is estimated that by the end of 1970 they will have a numerical lead even in nuclear submarines.

In the single year 1968, the Soviets put to sea a new type ballistic missile nuclear-powered submarine as well as several new types of nuclear attack submarines—a feat far exceeding anything we have ever done. It is estimated that by 1974 they will have added about 70 nuclear-powered submarines to their fleet, whereas we will add but 26—thus further increasing their numerical superiority. As for ballistic missile submarines, the Soviets have undertaken a vigorous building program to equal or surpass our Polaris fleet of 41. At least seven of their new Polaris-type submarines have been completed, and they now have the capability of turning out one a month. We have no Polaris submarines under construction or planned. We must assume that by the 1973-74 time period they will be up to us.

To achieve this, the Soviets have greatly expanded and modernized their submarine building and repair facilities. Just one of their numerous submarine building yards has several times the area and facilities of all U.S. submarine yards combined. They use modern assembly line techniques under covered ways, permitting large-scale production, regardless of weather conditions.

The progress made by the Soviets over the past few years in nuclear submarine design, construction, and operation could only have been accomplished through the efforts of a large group of highly competent technical personnel. We must assume the talents and efforts of this group will continue to provide the Soviets with additional advances in nuclear submarines.

The superiority of a given weapon system is never static. The history of warfare is an ever-changing contest between weapon and counterweapon. Whenever man invents a new weapon, two things happen immediately. First, his potential adversaries start to develop a counterweapon. Second, improvements are made in the original weapon to make it even more effective. This was the case with the bow and arrow, gunpowder, battleships, airplane, rockets, et cetera.

The battleship is a good example. In 1907 when the British *Dreadnought*, the world's first modern battleship put to sea it was hailed as "invincible." It had armor plate thick enough to stop any naval shell then in existence. Soon afterward other countries built their own battleships with large guns and heavy armor. The British then developed the destroyer to protect the battleship by firing torpedoes against opposing battleships. The other side, of course, soon had its own destroyers. The battleship then was given the capability of carrying airplanes to increase its range of visibility; this added the new element of air-power to the battleship.

Although it became evident during World War I to farseeing officers like Gen. Billy Mitchell that aircraft constituted a new and formidable weapon against the battleship, it nevertheless took a long time for those who had faith in the battleship to accept this and prepare against the danger. Even as in 1907 it was impossible to predict how long the battleship would remain "invincible," so is it today impossible to predict how long the Polaris submarine will remain invulnerable.

As in the case of the battleship, the competition between the submarine and its foes has seasawed since the former proved its worth in World War I. As advances have been made in submarine design since World War I, progress has also been made in developing antisubmarine warfare.

Submarines have the protection of the ocean depths. When submerged they cannot be seen by the human eye or by radar. The only way we know at present to detect a submerged submarine is by the sound it makes. For years, groups of scientists and engineers have tried to make submarines quieter, while other

groups have worked just as hard to develop more sensitive listening devices. This technological battle continues.

With the advent of nuclear propulsion, the submarine has been able to operate submerged at high speeds for long periods of time; this gave the nuclear submarine the edge. However, great strides are being made in the mobility of antisubmarine forces and in their capability to detect and destroy submarines. In fact, the nuclear attack submarine itself is now being used as an antisubmarine weapon.

We do not know, of course, how these developments will work under actual war conditions; nor do we know how effective our Polaris submarines would be in an encounter with an enemy antisubmarine force—be it air, surface, or subsurface—or how effective our own antisubmarine forces would be against the latest Soviet nuclear submarines.

The answer to your question concerning the survivability of our Polaris submarines in the mid-1970's depends on whether we can regain the advantage we had in the past. Will our progress in undersea warfare during the 1970's match that of the Soviet Union? Can we assume that our Polaris system will be the first weapon in history to remain invulnerable? The developments I have cited should caution us against making such an assumption.

As I pointed out in my April 25, 1969, letter to Senator Pastore (page S4226 of the Congressional Record, April 29, 1969), the Soviet Union is embarked on a program which reveals a singular awareness of the importance of sea power and an unmistakable resolve to become the most powerful maritime force in the world. As a result of the Cuban missile crisis, the Soviet leadership resolved never again to be placed in a position where they would have to negotiate from weakness—in that case lack of strategic and naval superiority. They have publicly avowed their goal to become preeminent in sea power, and all evidence indicates they are proceeding with competent speed. This is especially true in their undersea warfare forces. They have openly stated that these are to be the major arm of their fleet.

To recapitulate: I believe that while today our Polaris fleet is safe from a planned attack by the Soviets, there is sufficient evidence concerning their progress in this field to cause doubt by the mid-1970's. We must increase our own efforts if we expect our Polaris fleet to remain the deterrent it now is.

Respectfully,

H. G. RICKOVER.

Mr. FLOOD. Off the record.

(Discussion off the record.)

Admiral RICKOVER. To move ahead in submarine design you have got to have different types of submarines to test new concepts. You cannot try out too many things in one submarine, due to the limitations in displacement, weight, shape, cost, etc. Their system of designing and building submarines is far more flexible than ours. When they develop a new design, they build a number of them, say 5 to 10, in order to gain experience. Without waiting, they commit new designs to a substantial construction program. If the design does not work well, they may scrap all of them. This is costly at the time, but they learn much from such an approach to their submarine program which is remarkable for a Communist country. The German secret weapons—in World War II—were the daring, the speed, and the imagination with which they used what they had. This is what I see the Soviets doing today.

The Russians approach practically every military thing they do in this manner. In their government basic decisions are made and implemented rapidly. Once a decision is made, it is put into effect quickly without the huge overhead administrative effort required in the United States, which delays projects and greatly increases our leadtime and cost. They are willing to take chances on new developments, realizing that they will reap benefits for future work. For us, it takes 4 to 5 years merely to get approval to build one new design submarine. For example, it took years of fighting before the Secretary of Defense finally

approved building the high-speed submarine and reapproved proceeding with the electric drive submarine. The efforts of a large number of people, who should have been engaged in designing advanced submarines were wasted fighting off Department of Defense delaying tactics.

NEED FOR IMPROVED MANAGEMENT

They cannot afford the luxury of permitting many groups and committees, with no responsibility for results, to constantly investigate and halt programs, to study and restudy them, to submit report after report, to create turmoil in design and in construction, and then complain that the cost is higher than originally estimated. We are forced to do our work surrounded by this massive irresponsibility.

I am bombarded with esoteric studies on management, cost-effectiveness, how not to overrun on contracts, etc. All of this reminds me of Count Uvarov, the Minister of Public Instruction in the reign of Alexander I. He wrote brochures in French, corresponded on Greek subjects with Goethe in German, and discoursed on Slavonic poetry of the fourth century.

It was observed to him that in those days Russians had enough to do to fight bears, let alone sing ballads about the gods of Samothrace. I feel the same way. I cannot fight the bears while composing a sonata at the same time.

What is forgotten by those who set up these elaborate decision making processes is that the military is an operational organization with specific technical tasks to perform, and that these require a high degree of specialized technical knowledge and experience. They are tasks which are not amenable to purely management techniques. They lie in two different areas of human competence, and are not interchangeable.

Different elites disagree with each other; the problems with which administrators deal spill over into areas where they are not specialists, and they must either hazard amateur opinions or ignore larger issues, which is no better. We really have a form of organized disorganization because the Department of Defense's chief administrative goal appears to be the exercise of control in areas where their staff is not expert. The only way this could actually be done is by devoting the major effort to educate the military. But this has not been done because it requires constant painstaking effort and is not the sort of effort which is glamorous from a public relations standpoint. Instead military control has been exercised by civilians in non-military activities to create the impression of uniformity of action and thought—all of this being made to appear as conducive to efficiency and cost-effectiveness. This is why their dream of total efficiency through a new "science" of management has so often been shipwrecked on the hard rock of reality.

To see the absurdity of this assumption one has but to translate this situation into the parallel where an administrator with no medical education sits in judgment and lays down the law to a surgical team.

Let me assure you that the technical expertise required of a nuclear submarine designer is every bit as closed to the lay mind as is surgery.

It is simply not a matter of sitting at the center of an information

web and on the strength of bits of data collected by others, acquiring superior capacity to judge and direct complex technical processes.

With all the new systems analysis, computer techniques, game theory and alleged sociological "scientific insight" this still requires the kind of expertise which only the professional man with long experience possesses. People who don't know where the appendix is should not offer themselves as surgeons for appendicitis.

For all the world this reminds me most of the conceit of hereditary monarchs that they had some divine capacity to rule in every matter within their realm.

When I testify before this or any congressional committee, I try to tell as best I know what the other side is doing. I mean the Russians, not the Department of Defense. I am giving you the facts, as I know them. My desire is to give you information, if possible influence you, because I feel the Congress needs to see how efficient our potential enemy is in his military efforts. They don't work night and day fighting studies, budgets and layers upon layers of managers. Last year we were almost at a standstill in accomplishing tangible work.

I hope that more will be said of me than is inscribed on the tombstone of one of the hereditary princes of Monaco: "Here lies the body of Floristan—he desired to do good to his subjects." I would rather have it said of me what is inscribed on the floor of one of the transepts of the Spanish Town Cathedral in Kingston, Jamaica. The inscription is for Col. John Colbeck of the British Army. It says: "With great applause he departed this life ye 22nd day of February, 1682."

I saw this inscription nearly 40 years ago. I thought it would be good to have the same said of me when I leave, and I have tried ever since to act so as to merit such "applause." I am sure there are some in the Department of Defense who will be happy to accord me this—when I am gone.

When I do go I want to have no earthly merit left. I want to spend it all while I am still alive.

Voltaire mentions the old woman who carried a portable stove to burn Heaven and a water pitcher to extinguish Hell so that she might serve God without hope of reward or fear of punishment.

At my age and with no opportunity for promotion, I have a similar feeling toward our Congress.

I am always told I should consider things in a larger context; that in accordance with the larger context of the cost effectiveness analysts we don't need any more submarines or nuclear surface ships. Those who don't want to do anything are always the ones who think large. Those who do, are the small thinkers. It is far easier to deal in large vague generalities than to be responsible for small concrete solutions.

NEED TO LIMIT MANAGEMENT ORGANIZATIONS

I have said many times that Congress must step in and stop the executive branch from having so many vast management organizations, every member of which has the authority to stop work on numerous projects whenever he so desires. During my career I have been forced by them into many delays, and each time I had to stop important technical work to prove the bureaucratic elite wrong. Any system which permits constant checking, rechecking, and delays will result in gross inefficiency and loss of qualified people. A country op-

erating on such a basis simply cannot compete with an enemy like the Soviets who know what they want to do and who are resolutely doing it.

The coldness, the intransigence of some of these administrators is characteristic of commonplace natures. They learn to look at a man without seeing him, and not listen to him even though they are close to him.

There is an obvious affinity between status and static. Status is antithetical to the mobility of ideas just as static means the opposite of physically mobile.

It should be the function of administration to reduce conflicts of what has to be static and what has to be mobile—to provide the means for doing so. Instead the system tends to status—hence to static.

For every speedup in ideas and the ability to translate them into hardware, there has been instituted a slow-it-down by means of the vast and proliferating management systems of the Defense Department. These systems cause progress to be at least self-canceling.

The Department of Defense has been permitted by previous administrations to become so large and cumbersome that it is thoroughly inefficient. The creation of layers upon layers of management personnel to administer defense programs has achieved exactly the opposite of effective management; it has created "a world of ink." It has created multitudes of people who remain standing with their arms folded, who go back or who look to the side for a ford—to cross the ocean.

One must beware of using eloquence or theoretical considerations in dealing with some senior Defense Department officials. They are given to elaborate theories which they support by carefully selecting their data.

One such official, my superior, who was busily engaged in the details of design of a piece of equipment for a submarine—the proper function of his subordinates several layers below him—accused me of dealing in philosophy, and not in machinery details. In fact, he should have been the one, in view of his high position, to do the philosophizing. I had to do it because he was doing my job.

The problem goes deeper than just having an excess of managers. Whenever these managers are assigned, they immediately assume they have superior judgment over the lower echelons of people who are trying to do the job. They have imagination unrefined by experience and judgment, and a simple faith in complexity. They do not hesitate to make technical decisions, override subordinate opinions, and in general wield their influence with abandon. And yet when something goes wrong, they are the last to step forward and accept the responsibility.

NEED TO RESTORE ACCOUNTABILITY OF MANAGEMENT

It is one thing to delegate power to administrators and quite another to neglect one's own final responsibility. You are all familiar with the recent sinking of the nuclear attack submarine *Guitarro* at the San Francisco Bay Naval Shipyard. I predict that when the findings are finally published, senior managers in the Navy will admonish their subordinates to do a better job. It would not surprise me to see a committee or another management organization established to look into this problem and solve it. But these senior Navy managers will not

accept the responsibility for what has happened because, as senior managers, they are not responsible for events in the real world. They are responsible only to administer. We desperately need to restore accountability as part of every job description.

Mr. MAHON. Admiral, are you referring to only the Headquarters organization of the Defense Department and the Navy Department?

Admiral RICKOVER. No, sir. In my opinion, this same situation also exists in the management structure of the military forces. For example, the commanding officer of a nuclear submarine has several echelons of bosses to whom he is responsible and who, theoretically at least, are answerable for the operational and material condition of his ship. Directly over this commanding officer of an attack submarine, in the so-called chain of command are a division commander, a squadron commander, a flotilla commander, and a force commander. Each of these commanders has a staff, any member of which feels entitled to question the commanding officer and administer his ship. Yet when audits are made of that ship's material and operational condition, and deficiencies are uncovered, the members of the supervisory staffs all run for cover. Although they insist upon their right to supervise and give orders to the commanding officer, they do not accept responsibility for the condition of the ship. In fact, in my dealings with these staffs, I have found it almost impossible to shame them into even inspecting their own ships.

Mr. FLOOD. Could part of this problem be due to the caliber of people now in the military? Particularly their educational and intellectual level?

Admiral RICKOVER. Yes, sir. I think there is a correlation.

There is an intimate relationship between a society's occupational structure and its educational system. The educational system is one of society's most powerful mechanisms for sorting out children to assume different roles in the occupational hierarchy.

Studies made here and abroad over many years have established the intelligence range of different professions.

There is ample evidence that the intelligence demands of a profession are very much like the public's concept of the prestige or social standing of the profession, as shown by a number of public opinion polls. Any correlation of this kind is, of course, approximate since other considerations affect the public judgment of the profession. One would certainly hope so. Here is how the public ranks the eight leading professions according to the most recent Gallup poll:

- | | |
|-------------|----------------------------|
| 1. Doctor | 5. Minister, Priest, Rabbi |
| 2. Teacher | 6. Big Businessman |
| 3. Engineer | 7. Government Official |
| 4. Lawyer | 8. Military Career |

This should cause all of us serious concern. The rankings would appear to indicate that we may not be getting the right kind of people into our military. Certainly if our defense is essential to the welfare of the United States—and surely the large sums Congress and our people are willing to devote to it is proof of this—then we must do everything possible to raise the intelligence and educational level of those to whom we entrust our safety.

This matter is of such great national importance that procrastination could be disastrous. Everything is done by and through people.

No matter how good our weapons systems and our military equipment, if those who lead the effort are not the best, neither will our defense be the best.

Mr. MAHON. Admiral, is there any proposal to change the administration of the naval nuclear propulsion program?

Admiral RICKOVER. Mr. Chairman, I have to fight such battles continuously. The management structures of both the Defense Department and the Navy are constantly being reshuffled. Every time I look up from my technical work, I find a new manager has been appointed who thinks he is responsible for some of my work.

Mr. MAHON. Admiral, I want you to know that we were pleased to hear that the Defense Department has already announced your reappointment for another 2 years starting in January 1970.

Admiral RICKOVER. Thank you very much, Mr. Chairman. I am deeply grateful for your kind remarks and your strong support.

SOVIET SUBMARINE FLEET

Mr. MAHON. I have some questions here which I would like to get answered for the record. What is the maximum speed made by a Russian submarine?

Admiral RICKOVER. ———.

Mr. MAHON. What is the maximum speed of our latest nuclear attack submarine?

Admiral RICKOVER. About ——— knots. This is for our *Sturgeon* class.

Mr. MAHON. How many submarines do the Russians have capable of making ——— knots?

Admiral RICKOVER. ———.

Mr. MAHON. How many do we have?

Admiral RICKOVER. ———.

Mr. MAHON. How many do we think the Russians will have a year from now that will make ——— knots?

Admiral RICKOVER. About ———.

Mr. MAHON. How many will we have a year from now?

Admiral RICKOVER. ———.

Mr. MAHON. How many do we think the Russians will have by 1974?

Admiral RICKOVER. About ——— knots.

Mr. MAHON. How many will we have by 1974?

Admiral RICKOVER. Possibly ———.

If there ever was a fine indictment of the Defense Department under the previous administration, this is it. For 4 to 5 years they would not let me go ahead and design a submarine that could counter the new Soviet high speed designs—which I predicted they would have. Look at what this delay will cost the United States in loss of military advantage. This is not just a matter of money. It is a matter of national survival. I am giving you plain facts, not a cost-effectiveness analysis.

After all, the chief purpose in life is to manage the unforeseen. If you cannot do that, you have no business being in a position of responsibility.

The Soviets are not limiting their efforts entirely to new design submarines. They are converting many of their early ballistic missile submarines, both conventional and nuclear-powered, ———. They are phasing out the ——— they previously used. ———.

Not only is the quantity of design effort being expended by the Soviets remarkable but so, too, is the quality of what they are doing.

SPEED OF SOVIET SUBMARINES

This is another matter that gets back to the point which was raised by Mr. Flood about their submarine tradition.

You will recall how in last year's testimony, speed was such an important issue, particularly as it related to the need for high-speed U.S. nuclear attack submarines. At that time we estimated that the older Soviet nuclear attack submarines could do as much as ——— knots and the new designs just then emerging could go up to ———.

I mention that the top speed of our latest attack submarine class is ——— knots. In 1961 when the SKIPJACK went to sea she made ——— knots; the fastest a Soviet submarine could go at that time was about ——— knots. ———.

Mr. WHITTEN. Do you know at what depth? Is that on the surface?

Admiral RICKOVER. These are submerged speeds. The modern submarine goes substantially faster when submerged.

When it is on the surface it uses a great deal of energy in making waves. As a result, our later class will make only ——— knots on the surface, while making ——— knots submerged.

OPERATIONS OF SOVIET SUBMARINES

No less impressive are the advances they have made in ———.

Soviet submarines today operate out of area for longer periods, in greater numbers, and at greater distances than ever before. Unsupported operations in excess of 60 days have been observed. In one instance a nuclear submarine remained at sea for a period of about 6 months during which it was supported by an underway support group. This trend which is true also of the entire Soviet Navy, is significant because of the submarine's unique capability to operate in our own home waters.

Recently the Soviets established and operated in the Central Atlantic a mobile submarine task force where the submarines were maintained and supplied from tenders while at sea. Were this concept to be extended on a regular basis to both the Atlantic and Pacific, it would vastly increase the patrol areas which they could cover. Further, it reduces the need for distant Soviet submarine support bases and increases the submarine time on station.

DESIGN OF SOVIET SUBMARINES

Mr. FLOOD. How do they set up their POLARIS? Is it in two batteries the same as we do?

Admiral RICKOVER. Yes, sir.

Mr. FLOOD. Configuration is identical?

Admiral RICKOVER. ———.

Mr. FLOOD. I didn't know that.

Admiral RICKOVER. It is estimated that they have the capability to produce _____ of these submarines a year. In a relatively short time they could have as many if not more POLARIS type submarines than we do.

Mr. MINSHALL. How close in design aside from the 16 missile capability are the Russian subs to the American subs?

Admiral RICKOVER. _____.

Mr. MINSHALL. The reason I ask is that we had some discussion some years back about these model subs made available which were exact duplicates of our subs.

Admiral RICKOVER. The Russians have not made any models available. We have.

Mr. MINSHALL. Have they copied ours?

Admiral RICKOVER. We don't know. It would not surprise me if their submarines were not exact replicas of the plastic models we so generously made available to them—for \$2.98. And you will remember each model had a description certified for accuracy by the U.S. Navy. We are very good at giving information away, sir.

Mr. WEGNER. Their outward appearance is close to our *Ethan Allen* class. _____.

Admiral RICKOVER. _____.

Mr. ANDREWS. They hear enough about ours to duplicate the outside. Then the chances are they knew enough about ours to duplicate the inside?

Admiral RICKOVER. Mr. Andrews, it is a known fact that they have much of our information.

Mr. FLOOD. That is not the point. The point is what do they have that we don't have?

Mr. ANDREWS. _____.

NEED TO PROTECT INFORMATION

Admiral RICKOVER. Mr. Andrews is correct, sir. _____ . But Mr. Flood has touched on a very important aspect of this question which is frequently not clearly understood. I believe it may be worthwhile to discuss this in some detail.

Obviously, given the thousands of design, engineering, metallurgical, and chemical applications involved in a naval nuclear propulsion plant, we and the Russians were bound to arrive at different solutions to many, if not most, of the countless problems involved. As an analogy, let us suppose we organized two competitive groups of engineers—"A" and "B," and gave each the task of designing and building a passenger car of original design. If these two groups worked secretly and independently of one another as we and the Russians do, their automobiles would unquestionably be different in both appearance and performance. In fact, the chances would be slim indeed that any given parts on models "A" and "B" would be exactly the same—whether it is the engine, the brakes, or the trunk latch. Even major performance characteristics could vary considerably—speed, horsepower, size, ease of maintenance, and the like. And at each point of difference, there must be relative superiority of one model or the other.

Thus, the overall performance of each automobile would be a composite of many separate performance characteristics, which, in turn, would depend on hundreds of engineering applications ranging from the number of cylinders to the shape of the door hinges. It is inconceivable that either of the two models would be superior in all of these applications. One of them could be clearly superior overall but still remain inferior in scores or even hundreds of individual details. Each of the design groups, then, would have certain areas of technical superiority over the other, regardless of which car may be superior overall. It also follows that if either group could get access to the technical improvements of the other, it could produce an automobile far superior to that which either group could produce alone.

This, basically, is the situation which exists between the United States and the Soviet Union in naval nuclear propulsion technology. The evidence would indicate that we have a superior propulsion plant over all, although the Russians are obviously improving rapidly in some key performance characteristics. However, if they should gain access to our technology in addition to their own, they would very quickly surpass us; they would have everything we have developed, plus their own technology. This is why I am so concerned about the release of our technical information even though some of it is unclassified. This consideration also applies to many other technical areas.

In this regard, in an article by Ray Andrew Miller in a recent issue of the Yale Review, it was pointed out that during one of the last attempts by Western Powers to force the Japanese to accept a naval parity arrangement, on the eve of the Second World War, the Japanese negotiators objected even more strongly to the treaty requirements for the mutual sharing of information about military ship-building activities among the signatories than they did to the actual stipulation of limitation. Their argument at the time was that while they could always find out everything they wanted to know about such activities in Europe and America, no one in the West could possibly find out anything about what was going on in Japan unless the Japanese themselves decided to tell him.

Mr. FLOOD. That was an excellent statement.

Mr. WHITTEN. In 1956 when I was visiting Russia, the Russian Air Force had all our latest scientific magazines. None were over 2 or 3 months old.

RELEASE OF INFORMATION THROUGH ADVERTISING

Admiral RICKOVER. That is right, and much of this still goes on today. A major source is in advertising by firms doing defense work.

I hope this committee puts a provision in the Appropriations Act which prohibits the expenditure of funds in Government contracts to pay for advertising in magazines and technical journals. It represents nothing more than a continuous source of assistance to our potential enemies. What citizen is going to buy the kind of military equipment advertised in these magazines—nuclear submarines, aircraft carriers, missiles, tanks? What citizen would want such information published when it adversely affects our national security?

I am serious about this. It would be better to just give these companies the money they spend on such advertising in exchange for their

promise not to publish it. I really think, sir that by letting this go on, you are doing a great deal of harm.

You could dry up most of the source by placing a specific provision in all Appropriations Acts that all Government agencies prohibit payment of advertising cost as a part of contract costs. Such costs should be paid out of profits. That would dry up most of the leaks, sir.

I wish to reaffirm that, in my opinion, this committee alone, through the power of the purse, can do what is required. It is so important as to warrant overriding other considerations. You must stop expenditure of American tax money for the purpose of giving away American secrets. Unless you do, some future generation looking back at what went on today will find serious fault with this committee for permitting it to happen.

Mr. MAHON. We have something in the Appropriations Act already to control this.

Admiral RICKOVER. There is a provision in the act to prohibit reimbursement of advertising costs on defense contracts. The Department of Defense has written this prohibition into its procurement regulations. However, these regulations are mandatory only for cost-type contracts, and these account for less than a quarter of defense procurement. Thus, the congressional prohibition has not been made mandatory for three quarters of all defense contracts.

I again recommend that Congress include in the fiscal year 1970 and subsequent Appropriations Acts a specific prohibition against reimbursement of advertising costs on all defense contracts. In addition, Congress should establish a statutory requirement that advertisements for all equipment produced on defense contracts be submitted to the government for security clearance prior to publication.

Mr. MAHON. I think I can say many of us feel very definitely that it is outrageous from the standpoint of the security of the country that we have given away through these advertisements in various publications vital information which has been helpful to our opponents. More than that, we have decreased the costs for our opponents because they know more about what to plan to counter, and we have increased the costs of our own program.

I could not agree with you more. This is a difficult area but we find it almost impossible to do anything restrictive in the light of our freedom of the press heritage and tradition. It seems also that there are those in the Pentagon who will not cooperate with us in our efforts to prevent publication in these trade magazines of information of the kind which we think is damaging to this country.

Mr. MINSHALL. They usually get a big assist from the State Department.

Admiral RICKOVER. Yes; the State Department is often misguided in this area. The problem, I think, boils down to the fact that too many in the State Department, in effect, represent foreign countries to the United States rather than representing the United States to foreign countries. I run into this very same problem with members of my own organization who work in the field—away from the headquarters organization. They become sympathetic with the contractor; they begin to look at problems from his point of view, and before long they start helping him get his way. They forget that their sole purpose is to watch out for the Government's interests. The same thing

happens in the State Department. In addition to the many foreign "country desks" presently operating in the State Department whose responsibility it is to look out for the interests of foreign countries, it would be a good idea to establish at least one "U.S. desk"—charged with looking out for the interests of the United States.

Mr. MAHON. I agree.

SECURITY OF U.S. TECHNOLOGY

Admiral RICKOVER. You mentioned the security of U.S. technology and asked to be brought up to date.

Mr. MAHON. That is right.

Admiral RICKOVER. As you know, I have been concerned for many years over the large outflow of technical information from the United States, which, though unclassified, nevertheless, provides potential enemies with vast quantities of U.S. military technology. Last year I brought to the committee's attention the fact that steps had been taken by the Chief of Naval Operations to stop the flow of unclassified naval technical information to foreign countries. This was done in an April 18, 1968, directive wherein the Chief of Naval Operations established a requirement that no U.S. Navy technical information be published by Navy activities without approval of the cognizant Headquarters Command. The directive further specified that such approval not be granted unless (a) the proposed release contains no information of potential intelligence value, and (b) the publication of the information in question would result in significant benefit to the U.S. Navy. In view of the importance of this move, I recommended that a similar directive be issued by the other services.

On October 14, 1968, you wrote a letter to the Secretary of Defense expressing concern over the volume of valuable U.S. military technology being disclosed in open publications and requesting the Secretary's views on what could be done to stop this, particularly as to whether or not the Chief of Naval Operations order of April 18, 1968, should be applied Defense-wide. On October 14, 1968, Mr. Lipscomb wrote a letter to the Secretary of Defense recommending that immediate steps be taken to curtail the open publication of U.S. military technology by Department of Defense and the military departments and suggested across-the-board application of the Navy directive. Mr. Lipscomb on October 21, 1968, also wrote to the President with these same recommendations.

To the best of my knowledge the response to these letters was that the Defense Department had undertaken to study the problem. I do not know the current status of that undertaking, but I know of no substantive reply that has ever been made to your letter, Mr. Chairman, or to Mr. Lipscomb's letters.

Mr. MAHON. I know we have received responses, some of them in detail. We shall review these matters in more depth in preparation for the mark-up and reporting of the appropriation bill. It is a very serious situation.

Admiral RICKOVER. I would hope at some point the committee will again inquire as to the status of the Defense Department review of this matter and what action they plan to take, sir. All the while the Defense Department is conducting its study, I continue to see examples of our giving away valuable military technology.

For example the April 1969 edition of the magazine *Armed Forces Management* contains military information which in my opinion should not be openly published. Not only are there over 50 advertisements in this magazine that give information about military equipment, but a number of the articles reveal substantial technical details. You will note that this is called the 7th Annual Defense Forecast Issue. I can only picture the joy and the warmth with which this issue is received by our potential enemies. For instance, it contains an article describing most of the major research and development projects being pursued by the Defense Department. The magazine is also gracious enough to include a 56 page supplement entitled, "1968-69 United States Military Systems Directory."

This supplement lists over 3,000 major weapon and support systems, programs, and equipment of the U.S. Armed Forces, a description of each project and its use, and an indication of the project status. Most of this information no doubt came from military sources, and I am sure it is considered unclassified. But the extensive compilation of information on our defense efforts should not, in my opinion, be released in a form so readily available to our enemies. This information is of virtually no interest to the American public; it is of major interest to foreign intelligence agents. It is a fine example of unilateral international sharing.

Implementation of the Chief of Naval Operations directive throughout the Defense community would go a long way toward improving the control over unclassified military technology.

Mr. MAHON. I agree with the concern you have expressed here.

Admiral RICKOVER. In this case, as in many others, the appointed administrators have not proved to be wiser than the people or Congress—their elected representatives.

Control over release of military information is not, unfortunately the only problem we face in security. The Naval Ship Systems Command has found that the ———. At my suggestion, a special task force has been established to review in-depth the ———.

Mr. MAHON. Are they doing a thorough job?

Admiral RICKOVER. It appears they are conducting a thorough review and that positive improvements may be made. I intend to follow the work of this task force closely.

Mr. MAHON. I would like to have you inform this committee of the progress made.

Admiral RICKOVER. Yes, sir.

Mr. MAHON. Off the record.

(Discussion off the record.)

HIGH-SPEED SUBMARINE PROGRAM

Mr. MAHON. What is the status of the high-speed submarine program?

Admiral RICKOVER. Preliminary design of the submarine, which has been designated the SSN 688 class, has been completed. The construction specifications and contract plans are now being prepared by the Navy and procurement of long-leadtime items for the propulsion plant is proceeding.

The Navy's request for the fiscal year 1970 shipbuilding program included three high-speed submarines fully funded and long-lead

funds for five more. The initial fiscal year 1970 budget submitted by President Johnson included the three submarines fully funded in fiscal year 1970, and long-lead funds for four submarines instead of the five requested by the Navy.

The revised budget submitted by President Nixon further reduced the program requested by the Navy for fiscal year 1970. It deferred the ship authorization for the third high-speed submarine from fiscal year 1970 to fiscal year 1971 and included \$47.2 million advance funding in the fiscal year 1970 budget for the third submarine in addition to the long-lead funds for four more already included in President Johnson's budget.

To obtain the earliest practicable delivery of ships of this class, the Navy requested authorization to award shipbuilding contracts for the first three submarines in fiscal year 1970 and to start procurement of long-leadtime items for the next five in fiscal year 1970. Advance procurement funds are restricted by law to use for items which can be completed and delivered within the funds appropriated. Therefore, preliminary ship fabrication work cannot be undertaken in fiscal year 1970 on the third submarine if only advance procurement funds are provided as requested in the revised budget. Delay in authorization of the third submarine from the fiscal year 1970 to the fiscal year 1971 program will cause a delay of 5 months in the third ship and delays of a few months in each of the later ships of this urgently needed new class.

Lead and follow ship cost estimates for the SSN 688 class submarines in the fiscal year 1970 program are \$230.6 million for the lead ship, and \$152.7 million for each follow ship. A total of \$31.5 million advance procurement funds were provided by Congress in fiscal year 1969. Therefore, for three submarines fully funded in fiscal year 1970, new obligational authority of \$504.5 million is required.

As I emphasized earlier in my testimony, the rapidly increasing Soviet threat makes it essential that the United States get the new high-speed submarine class into the fleet as soon as possible. In recognition of the urgency of building the new design high-speed submarines, the Senate Armed Services Committee has recommended full funding of the first three of these ships and advance funding for five more be provided in fiscal year 1970. The Navy is considering various contract arrangements for these eight submarines and their components which would use the funds appropriated this year to achieve the earliest practicable delivery schedules. In order to save time and money, the Navy plans to take advantage of quantity procurement techniques, such as multiyear contracting for the eight submarines and their components.

In their report authorizing appropriations for fiscal year 1970, military procurement the Senate Armed Services Committee stated the following:

The committee revised the pending request and is recommending the full funding of three nuclear attack submarines in the amount of \$504 million (\$536 million less \$31.5 million previously approved advance funding), and lead funds in the amount of \$90 million for five attack submarines.

It might be noted that the committee has increased funds for attack submarines over either the budget submitted on January 14, 1969, or the revised budget of April 15, 1969. The earlier request contained full funding for three nuclear attack submarines with advance funding for four ships. The revised budget of April

15 contained full funding for only two attack submarines with lead funds for five ships with accelerated funds for one of these five. The committee is of the opinion that the seriousness of the Russian submarine program and its threat in the 1970's justifies the modest acceleration which the committee has given to the attack submarine program in this bill.

The premise for the committee's position on the nuclear attack submarines is based on developments in the Soviet submarine force, both what has already been accomplished, and other indications of what their future program is likely to be. The Soviet submarine force constitutes a growing threat against U.S. naval forces in two respects. First, they are a growing threat against the carrier strike forces. Second, a Soviet priority is devoting a large amount of their resources toward developing nuclear attack submarines to counter our Polaris submarines.

This recommendation has the strong support of the Joint Committee on Atomic Energy. Although I know that funds are tight this year, I hope your committee will also support this important recommendation and provide the funds required to include three of the new high speed submarines in the fiscal year 1970 shipbuilding program, and to start long-leadtime procurements for five more.

DEFERMENT OF THIRD HIGH SPEED SUBMARINE

Mr. MAHON. Why did the new administration defer the third high speed submarine previously planned for the fiscal year 1970 program to the fiscal year 1971 program?

Admiral RICKOVER. The decrease from three to two submarines in the fiscal year 1970 program was made for financial reasons—to reduce the budget. The Department of Defense now agrees with the Navy that the third high speed submarine is required, but the Department of Defense is apparently unwilling to ask Congress for the money to fully fund the third submarine in the fiscal year 1970 program.

Mr. MAHON. If the Congress authorized the third high speed submarine would the Navy be able to proceed with its construction?

Admiral RICKOVER. Yes, sir. The Navy would proceed with construction in the fiscal year 1970 program. This would permit the earliest possible delivery of the ship to the fleet.

The Navy has clearly and repeatedly emphasized that the high speed submarine class is urgently required to counter the Soviet submarine threat. The magnitude of this submarine threat has been revised upward recently in that the Soviets have built significantly improved new classes of submarines and put them to sea years before they were expected. In particular, the new Soviet submarines are estimated to have the capability to achieve submerged speeds of _____.

The SSN 688 class is the only submarine design the Navy can build in the early 1970's to counter a _____ knot Soviet threat. The top speed improvement of the SSN 688 class will be obtained by using a _____ horsepower propulsion plant; _____ the rating of the Sturgeon class propulsion plant. This _____ horsepower plant is based on the _____. In addition, based on the results of a comprehensive, detailed Navy study, the SSN 688 class will have improved combat subsystems compared to the Sturgeon class.

In my opinion, the high speed submarine program is one of the most important items your committee is reviewing this year.

When you consider this issue, I would appreciate having the opportunity to talk to you or to any concerned member of the committee.

Mr. MAHON. We will consider this subject carefully.

Admiral RICKOVER. I don't know of anything I can tell you today that is more important than this issue. I hope you agree with me, sir.

AIRCRAFT CARRIERS

I would like now to answer any questions you have about nuclear aircraft carriers and nuclear frigates. I will let Mr. Leighton go into this.

NUCLEAR-POWERED AIRCRAFT CARRIERS

Mr. MAHON. The defense appropriation bill contains funds for construction of a nuclear-powered aircraft carrier. Would you please explain the need for these funds?

Mr. LEIGHTON. Yes, sir. Each year for the past 4 years the Secretaries of Defense have presented to the Congress the Department of Defense plan to build three new two-reactor nuclear-powered attack carriers of the *Nimitz* class in alternate years starting in fiscal year 1967. These three carriers, CVAN-68, CVAN-69, and CVAN-70, are scheduled to replace World War II *Essex* class carriers, which by that time will range from 26 to 30 years of age and will then continue in service as antisubmarine warfare carriers, CVS.

The *Nimitz*, CVAN-68, was authorized and funded in fiscal year 1967. The ship is under construction at the Newport News Shipbuilding and Dry Dock Co., Newport News, Va.; the keel was laid over a year ago.

Congress authorized and appropriated \$50.5 million in fiscal year 1968 for procurement of long leadtime nuclear propulsion plant components for the second *Nimitz class carrier*, CVAN-69. The remainder of the funding for this ship was originally scheduled for fiscal year 1969. However, in order to reduce the new obligational authority in fiscal year 1969 to a minimum, the Department of Defense and the Congress included only \$82.4 million more in fiscal year 1969 which was enough to keep the CVAN-69 on schedule. The remaining \$377.1 million needed to complete the funding of the ship was slipped to the fiscal year 1970 budget.

The propulsion plant machinery for the CVAN-69 is well along in fabrication. The remaining funds for the CVAN-69, which are included in the fiscal year 1970 budget request, must be made available in fiscal year 1970 if the ship is to stay on schedule.

Both Secretary McNamara and Secretary Clifford told the Congress that the third *Nimitz class carrier*, the CVAN-70, would be included in the fiscal year 1971 program. The current 5-year defense plan continues to show the CVAN-70 in the fiscal year 1971 program. Therefore, the Navy recommended that \$97.2 million of advance procurement funds be provided in the fiscal year 1970 budget for procurement of long leadtime nuclear propulsion plant components to prevent delivery of the CVAN-70 from being delayed. The nuclear propulsion plant components require a year more for manufacture than the next most limiting carrier components.

The Department of Defense deferred the advance funding to reduce the fiscal year 1970 budget and is planning to fully fund construction of the CVAN-70 in fiscal year 1971. The shipbuilding bill introduced in the House of Representatives by Chairman Rivers of the House Armed Services Committee, H.R. 574, includes advance procurement funds for the CVAN-70. Without funds in fiscal year 1970 to procure long leadtime items for the CVAN-70, the overall ship construction will be delayed and the cost of the ship will be increased.

Admiral RICKOVER. I recommend that Congress this year not only approve construction of the second *Nimitz* class carrier, the CVAN-69, but also make advance procurement funds for the CVAN-70 available to the Navy.

It is very important to the Navy that we contract for the second *Nimitz* class carrier in the fiscal 1970 program, and get started on long lead procurement for the third one.

Mr. LEIGHTON. In order to acquire these carriers on schedule and at least cost, the CVAN program is based on procurement of these ships on a modified multiyear contract with one shipbuilder in accordance with a carefully structured acquisition plan. Any significant deviation from this plan would be reflected in lengthy delays in delivery and substantial cost increases. Multiship procurement, particularly when the ships are purchased from a single shipbuilder, offers many cost and time advantages. The employment of a repeat design, multiple production of certain components, and careful planning on the part of the contractor can be the source of significant savings. To effect these economies, the second *Nimitz* class carrier, the CVAN-69, must be authorized and funded this year.

The plan is to definitize a contract for the three ships, the first of which is already started, so that the three ships can be built to the same specifications and plans and with as economical a phasing as possible. If you spread the schedule of these ships out, costs will go up. You can build three identical ships much more economically if one comes right after the other and you can phase the work in properly. So any change in that schedule that causes the second or third ships to be moved to a later time frame will cause the individual costs of the ships to be higher. In addition to the urgent need for the ships in the fleet, this is the reason the Navy feels so strongly we must keep the second and third *Nimitz* class carriers in the specific budgets for which they are planned.

Any reduction or deferral of the current request for authorization and funding for the second carrier of the *Nimitz* class would, of course, have a serious impact on the capability of our carrier inventory. As presently planned, the CVAN-69 will join the fleet in 1974 to replace the *Bon Homme Richard*, which will then be 30 years old—a veteran of World War II, Korea, and Vietnam.

COST OF CARRIER OPERATIONS

Mr. MAHON. There are study groups in the House and Senate working on proposals to reduce Government spending in the area of defense. There is a so-called Hatfield report which I believe undertakes to point out that the cost of putting a carrier in operation is about \$4 billion, when you count all the costs.

Do you agree that this figure is in accordance with the guidelines laid down by the Hatfield study? Do you agree that this figure of \$4 billion is about correct?

Admiral RICKOVER. No, sir. You are correct that the figure cited in the Hatfield report for the cost of a carrier is about \$4 billion, but the Navy does not agree that it is a correct figure for the cost of a carrier.

Mr. MAHON. I would like you to explain why their figure is not correct if you accept the guidelines they laid down.

Mr. LEIGHTON. I cannot comment on that in detail because I have not studied all their guidelines and do not know the source of some of the figures used in their calculations. I will be glad to get you the Navy's comments on that for the record. However, I would like to point out that the Hatfield report arrives at the \$4 billion cost of a single carrier on the line by including the cost of \$1.5 billion for three carriers, \$1.2 billion for 18 guided missile destroyers, and \$1.2 billion for logistic support ships. They do this on the premise that since the Navy has a force level of 15 attack carriers and the normal peacetime requirement is to continuously deploy only five carriers overseas to the 6th and 7th Fleets, the Navy must have three carriers to deploy one. This is an incorrect premise. The Navy's force level of 15 carriers is predicated on an estimate of the total commitments the Navy must be prepared to meet at a given time, not solely on the normal continuous peacetime overseas deployment requirements. The carriers assigned to the 1st and 2d Fleets are very much a part of our ready defense forces—as was clearly demonstrated in the 1962 Cuban Crisis when the *Enterprise*, *Saratoga*, and *Independence* were ordered to quarantine and photo reconnaissance duty off Cuba. On the average, each carrier is ready for combat duty about 80 percent of the time—not 33 percent as assumed in the Hatfield report. In times of emergency the percentage of readiness would be increased by postponing overhaul and maintenance upkeep periods until the emergency abated.

The number of logistic ships the Navy requires is not set by the number of carriers deployed in peacetime or by the total force level of attack carriers. The number of logistic support ships is determined by the number of underway replenishment groups needed to support contingency war plans for the entire Navy and the distance these groups must be prepared to operate from advanced bases.

The Hatfield report gives no clue as to the derivation of its assumption that the three carriers it says must be bought to support one carrier deployed require the expenditure of \$1.2 billion for logistic ships. Since I don't know the derivation of their figure, it is difficult to discuss it. However, I would like to point out that the total amount appropriated to construct all new underway replenishment logistic support ships authorized for the entire Navy over the past 17 years—33 ships in all—is less than \$1.2 billion. During the same period nine modern attack carriers, including the *Enterprise* and the *Nimitz*, have been authorized. Therefore, it appears to me to be totally unrealistic to suggest that buying the CVAN-69 would entail a further commitment to spend \$1.2 billion for logistic ships—especially since a principal advantage of nuclear powered ships is their reduced dependence on logistic support—because they don't require underway replenishment of propulsion fuel. The initial reactor cores for the *Nimitz* class carriers, which are included in the construction cost of the ships, are expected to provide fuel for 13 years of ship operations—without refueling.

The number of guided missile destroyers needed is a function of the anticipated air and submarine threats and the number of different locations whence the threat can be expected. No fixed number of

escorts is required for each carrier because the number assigned depends on the threat at the time in the vicinity of the specific carrier. It is true that many of the threat evaluations which are considered in determining the required force level for attack carriers also affect the required force level for guided missile destroyer type ships. However, it is not reasonable to charge the cost of three sets of six guided missile escorts to the cost of one carrier.

15 CARRIER FORCE LEVEL

Another erroneous assertion made in the Hatfield report is that, except during wartime, the United States has had 15 capital ships since 1921; that before World War II these capital ships were battleships, while after that war they were carriers. The inference is that the need for the present force level of 15 attack carriers has not been thoroughly reviewed and was arrived at over 40 years ago as sort of a "magic number." This is just not so.

The Navy came out of World War II with a force level of 20 attack carriers. Following the war, the force level was cut each year, with attack carriers being deactivated and put into the reserve fleet. By 1950 the force level was down to only seven attack carriers of *Essex* class size or larger—three *Midway* class and four *Essex* class. That was soon demonstrated to be a serious mistake.

Within days after the North Koreans invaded South Korea, they had overrun and captured every tactical airbase in South Korea. Carriers were the only practicable means the United States had left to furnish tactical air support to our badly mauled troops. The Navy frantically reactivated the *Essex* class attack carriers which had just been put into the reserve fleet. Since these ships were then fairly new, it was feasible to build up the carrier force level rapidly. By 1952 the Navy had 16 attack carriers in operation.

Subsequently, the Congress approved a building program of one modern carrier of the *Forrestal* class per year from fiscal year 1952 through 1957. The nuclear powered *Enterprise* was authorized in fiscal year 1958, the conventional *America* in 1961, and the conventional *John F. Kennedy* in fiscal year 1963. Starting in 1955, as the nine new carriers were completed, the attack carrier force level was varied between 14 and 19 by varying the number of *Essex* class attack carriers in the active fleet.

For the past 10 years the approved force level for attack carriers has fluctuated between 14 and 16 depending on the circumstances. When operation Rolling Thunder was undertaken in the Vietnam war, it was recognized that the Navy could not meet its total tactical air assignments with the then approved force level of 15 attack carriers. The President, therefore, approved augmentation of the force with one antisubmarine warfare carrier serving in the attack carrier role for the duration of the conflict. Thus, the Navy currently has 16 carriers serving in the attack carrier role.

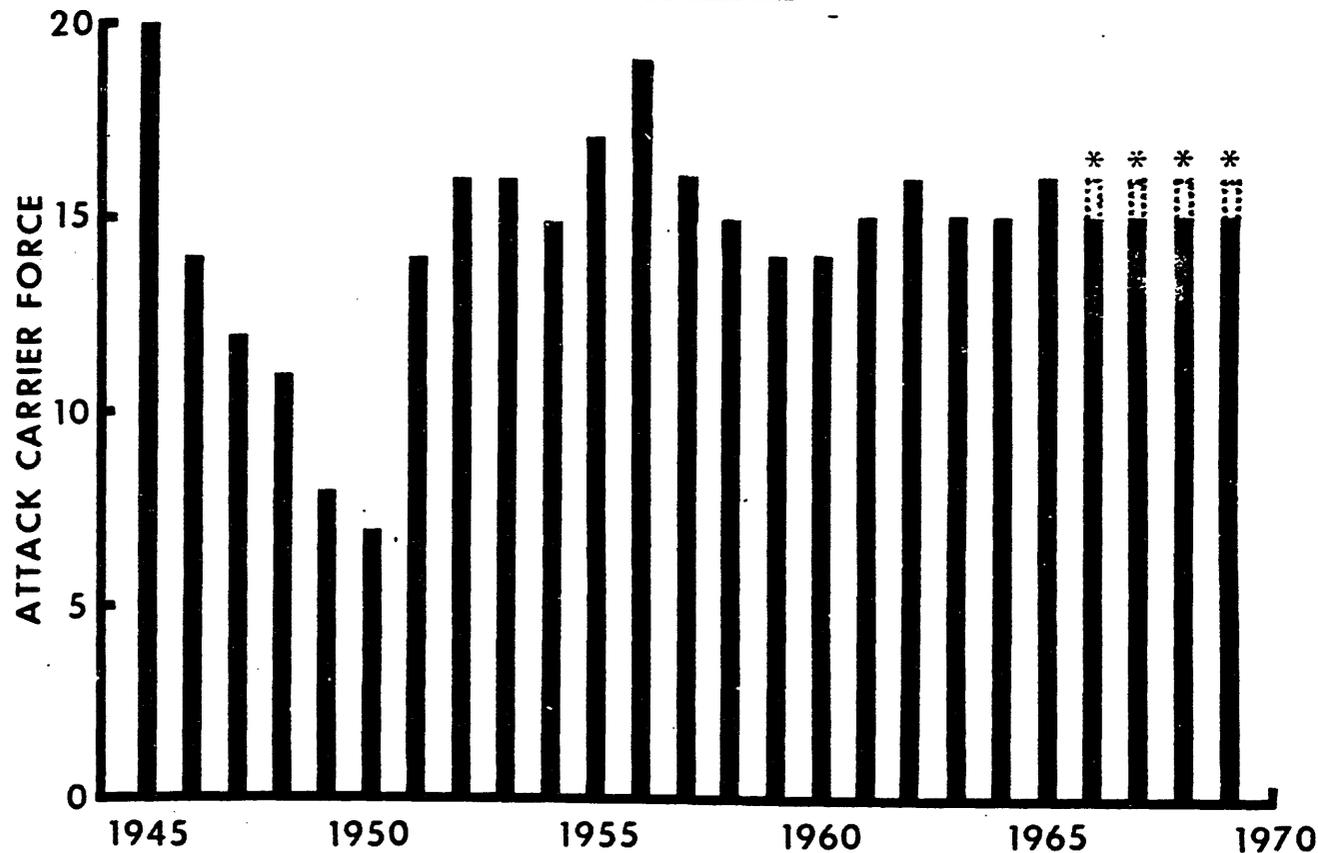
If you wish, sir, I will furnish a table for the record showing the Navy's attack carrier force level each year since World War II and a table showing the 16 ships now serving in the attack carrier role.

Mr. MAHON. Please insert the tables in the record.

(The information follows:)

ATTACK CARRIER FORCE LEVELS

AS OF 30 JUNE EACH YEAR



*AN ANTI-SUBMARINE WARFARE CARRIER (CVS) HAS BEEN TEMPORARILY ASSIGNED DUTY AS AN ATTACK CARRIER FOR THE DURATION OF THE VIETNAM CONFLICT.

ATTACK AIRCRAFT CARRIERS OF THE U. S. NAVY

<u>NUMBER</u>	<u>NAME</u>	<u>DATE COMMISSIONED</u>	<u>AGE IN YEARS AS OF SEPTEMBER 1969</u>	<u>PLANNED REPLACEMENT</u>	<u>AGE WHEN PLANNED TO BE REPLACED</u>
CVA67	JOHN F. KENNEDY	9/7/68	1	—	—
CVA66	AMERICA	1/23/65	4	—	—
CVAN65	ENTERPRISE	11/25/61	7	—	—
CVA64	CONSTELLATION	10/27/61	7	—	—
CVA63	KITTY HAWK	4/29/61	8	—	—
CVA62	INDEPENDENCE	1/10/59	10	—	—
CVA61	RANGER	8/10/57	12	—	—
CVA60	SARATOGA	4/14/56	13	—	—
CVA59	FORRESTAL	10/1/55	13	—	—
CVA43	CORAL SEA	10/1/47	21	CVAN72 (1980)	33*
CVA42	FRANKLIN D. ROOSEVELT	10/27/45	23	CVAN71 (1978)	33*
CVA41	MIDWAY (presently decommissioned undergoing modernization)	9/10/45	24	—	—
CVA34	ORISKANY	9/25/50	19	CVAN70 (1976)	26*
CVA31	BON HOMME RICHARD	11/26/44	24	CVAN69 (1974)	30*
CVA19	HANCOCK	4/15/44	25	NIMITZ (1972)	28*
CVA14	TICONDEROGA	5/8/44	25	MIDWAY (1970)	26*
CVS38	SHANGRI-LA	9/15/44	25	— **	—

*To be redesignated as CVS.

**Temporarily serving as an attack carrier for duration of Vietnam conflict.

Mr. LEIGHTON. In recent years the Joint Chiefs of Staff, based on searching studies of all our defense needs, have repeatedly recommended a force level of more than 15 attack carriers.

Of the 16 carriers the Navy is operating in the attack carrier role today, seven were launched during or shortly after World War II. Five of these are *Essex* class carriers which cannot operate the latest generation of tactical aircraft, the F-4 Phantom II, the A-6 Intruder, the RA-5C Vigilante, and the E-2 Hawkeye. Very soon we will have reached the point where the *Essex* class air wing cannot survive in the threat environment of the new Soviet tactical aircraft.

One of the *Essex* class attack carriers will be replaced by the *Midway* when her modernization is completed next year, and one will be returned to the antisubmarine warfare role when the Vietnam war ends. This will leave three *Essex* class and three *Midway* class carriers in the attack carrier fleet.

The Navy has in operation only nine modern carriers; only one, the *Enterprise*, has nuclear propulsion.

We do not today have modern carriers in reserve as we had in the Korean war, and the *Essex* class antisubmarine warfare carriers are rapidly losing their capability to fulfill the attack carrier role. As our ability to augment our regular attack carrier strength from the reserve fleet or the ASW forces disappears, so does our flexibility in attack carrier force levels.

We will have to fight our future wars with the attack carriers we have in the force at the war's inception.

It was determined in the Korean war and in the Vietnam war that a force level of 15 attack carriers was not sufficient under those circumstances to support the requirements for sea based tactical air power. It may not provide the required levels of tactical air power in future contingencies, particularly in view of the rapid deterioration taking place in our overseas base structure. Loss of bases to military force or political action cannot be compensated for in the future by a rapid buildup of carriers over and above the regular force levels because we no longer have modern carriers in the reserve fleet. These considerations must be taken into account when judging whether 15 modern attack carriers in the active fleet is a proper number.

The Navy considers it essential that the three *Nimitz* class nuclear-powered attack carriers, which are scheduled to replace three World War II design *Essex* class carriers when they are 26 to 30 years old, be funded and built in accordance with the Navy recommended program, regardless of any change that may be made to the force level as a result of future analysis.

Admiral RICKOVER. It should be borne in mind that if it is decided at some point that the attack carrier force level must be reduced, this should be done by retiring World War II carriers—not by canceling new construction ships which are needed in order to prevent the carrier force from becoming obsolete. The smaller the number of operating carriers, the more important it is that each unit be as capable as possible. Further, the continuous erosion of our overseas base structure and the increasing vulnerability of our logistic supply lines emphasize the importance of increasing the number of attack carriers in the fleet that have nuclear power. The *Nimitz* class carriers are the least vulnerable, most modern carriers the Navy knows how to build.

When I see irrelevant arguments like the battleship force levels established in the 1921 Naval Treaty being used against building the second carrier of the *Nimitz* class, I must caution you to remember that there is danger in great magnificent abstractions the mere sound of which precipitate men into meaningless actions. The Navy has many comments on the Hatfield report and we shall supply them for the record.

(The information follows:)

ATTACK AIRCRAFT CARRIERS

(Extract From the "Report on Military Spending" by the "Members of Congress for Peace Through Law/Committee on Military Spending")

ANNOTATED

RATIONALE AND DISCUSSION

COMMENT

A. *The Costs are Far Exceeding Planned Estimates*

The current size of the U.S. attack carrier fleet is 15 ships: Eight *Forrestal* class carriers, three *Midway* class carriers, three *Hancock* class carriers, and one nuclear-powered carrier, the *Enterprise*.

The last conventional carrier, the *John F. Kennedy*, entered the fleet in September 1968.

In the spring of 1968, construction began on the nuclear-powered CVAN-68 (*Nimitz*), with a projected completion date of fiscal year 1972 and an estimated cost of \$536 million. As now proposed, the funding for CVAN-69 is to be completed with a \$377 million appropriation from the fiscal year 1970 budget, bringing the total cost to an estimated \$510 million, including \$133 million already assigned and partly spend from earlier budgets for long leadtime items. (The difference in costs between CVAN-68 and CVAN-69 reflects the fact that the latter is being built on the same contract and design plans as the former.)

It is understood, however, that Navy official estimates of the cost of CVAN-69 have since been raised to \$540 million and that the unofficial estimates are for an amount over \$600 million. Sources in the Pentagon indicate that a final cost of over \$700 million is not unlikely. A part of the long leadtime procurement for CVAN-69 has been accomplished, but the keel has not been laid.

The current official Navy estimate for the cost of CVAN-69 is \$510 million.

The final total cost cannot be known until the ship is completed. A major factor over which the Navy has no control is changes in market prices for labor and material as the economic environment of the U.S. changes, pushing prices up or down or holding them steady over the building period of the ship. If this change is different from what has been allowed in the budget the estimated end cost will change accordingly. The Navy is exerting substantial management effort to insure that the *Nimitz* class ships will be completed at minimum cost.

The source in the Pentagon is not the U.S. Navy.

CVAN-69 is scheduled to enter the fleet in fiscal year 1974. CVAN-70 has been authorized and is programmed for fiscal year 1971 funds; it would join the fleet in fiscal year 1976. Current procurement costs of the rest of a carrier task force, without which a carrier is never deployed, are estimated as follows:

Escorts:

6 DXG (conventionally powered guided-missile destroyers) -----	\$405,000,000
Logistics ships -----	400,000,000

The investment cost of a nuclear attack carrier task force, therefore, in current dollars and assuming no cost overruns is:

CVAN -----	510,000,000
6 DXG -----	405,000,000
Logistics -----	400,000,000
	<hr/>
	\$1,315,000,000

To this amount should be added the cost of the approximately 23 percent of a carrier's aircraft, usually earmarked for task force defense and thus not available for tactical missions. The average Naval Air Wing of 75 A6's, A7's, and F4's costs \$175 million (conservative estimate). Hence, \$175 by 23 percent equals \$36-plus million.

\$1.315 billion plus \$36 million equals \$1.351 billion.

This figure, \$1.351 billion, is the present investment cost of a nuclear attack aircraft carrier task force with its defensive aircraft.

However, since an aircraft carrier is on station only one-third of the time, to get one carrier on station 12 months of the year, three task forces have to be purchased.

There is no standard carrier task force with a fixed number of escorting surface combatants. A task force is constituted as the title implies, for the accomplishment of a specific task. The composition of the carrier task force will depend upon the nature and magnitude of the anticipated threat. The Navy's forces of missile ships and antisubmarine ships are not maintained for the sole purpose of escorting carriers, but their mission is to operate against specific threats in exercising control of the seas. It is in the context of this role that major surface combatants are included as components of, or operate in conjunction with attack carrier task forces.

It cannot be presumed that a carrier will be deployed with only a fixed number of surface combatants in company. It is a fact that attack carriers can, have, and will continue to operate singly or with only one or two other ships in company, when appropriate to the requirements of the tactical or strategic situation.

The subject at issue is the attack carrier, specifically, in this section, its cost. It is neither germane nor correct to add to the cost of the carrier the acquisition costs of new surface combatants or support ships. The Navy does not buy new escorts and new support ships for each new carrier. As will be explained in detail below, the *Nimitz* class carriers are not intended as increases to the Navy's carrier force levels, but will replace older carriers. The surface combatants and support forces which operate in conjunction with the old carriers will continue to operate in conjunction with their replacements. In fact, as the nuclear-powered *Nimitz* class ships replace the older conventional carriers, the existing requirements for tankers to provide ship propulsion fuel is actually reduced.

The deployment of one-third of the total carrier force is strictly a routine peacetime pattern. In an emergency, should the strategic situation demand, carriers in home waters would be immediately deployed. For example, on August 1, 1969, 14 attack carriers are at sea or immediately ready for sea. One more would be ready in

The multiplier is 3 for ships and 2.39 for aircraft.

$\$1.315 \text{ billion} \times 3 = \3.945 billion

$\$36 \text{ million} \times 2.39 = \86 million

$\$3.945 \text{ billion} + \$0.086 \text{ billion} = \4.031 billion

Thus, the investment cost in hardware reaches \$4.031 billion to keep an aircraft carrier on station 12 months per year. This does not include the construction costs of carrier bases. (The naval base at Rota cost \$120 million to build, and is operated about half for carriers and half for submarines.)

This does not include any operating costs for carrier task forces.

This does not include the purchase of any aircraft, bombs, or ammunition that would be required to perform the tactical air mission assigned to the carrier.

This figure, \$4.031 billion, does not include any of the rent we pay annually to foreign nations for naval basing rights.

In short, it costs over \$4 billion to put a floating, mobile airfield in the Mediterranean or the Pacific, without taking into consideration costs of tactical aircraft, bases, or operations.

B. Numbers of carriers set in 1921

The Pentagon has never defended adequately the size of the carrier force to the Congress. The present number of carrier task forces is 15. Since 1921, except during wartime, the Navy has had 15 capital ships. Before World War II, these capital ships were battle-ships; after the war, there were carriers. As late as 1964, the long-range plans of the Pentagon called for a cutback to 12 or 13 ships after 1970.

The Navy currently operates carriers at 5 stations. Since there are 2 nondeployed carriers for every one deployed, a total of 15 carriers are required by present policy and doctrine. But neither the need for 5 stations nor the 33 percent time on station factor have ever been adequately defended before the Congress.

5 days, and the one carrier which was in overhaul, could be deployed in 60 days.

Thus, in an emergency situation, not 33 percent, but 85 percent of the attack carriers are immediately available, and a total of 94 percent are available within 5 days.

The naval base at Rota does not support the aircraft carriers in the Sixth Fleet. Carriers in the Mediterranean depend on no shore facilities in the area for logistic support, supply, or repair.

Carriers do not require foreign base support. They can receive all their logistic support by sea lift from the United States. They can be deployed or withdrawn to meet changing international situations without adding to our international commitments.

Attack carrier force levels are determined by the portion of the total tactical air requirement that is efficient and economical to operate from sea bases. The desired force level can be affected by the geographical areas involved and the contingencies considered.

An effective tactical air capability is an essential element of United States general purpose forces. Both sea-based and land-based tactical air are required in order to provide support for the forward deployed concept of our planned national strategy.

Land-based tactical air can be effectively employed only when adequately prepared and provisioned air bases are available within tactical air radius of a particular area of interest. Sea-based tactical air is required when such land bases are not available.

Under peacetime conditions (that is, when the United States is not actively engaged in a shooting war), there are two primary strategic areas critical to our national interest, where an adequate overseas base structure is not currently available. They are the western Pacific and Mediterranean littorals. The trend is toward continuing erosion of our overseas base structure as other nations alter their policies. Attack carrier forces continuously deployed to these areas provide the only assurance of a capability for quick reaction to threats to our national security and objectives. To furnish the tactical air to support our planned strategy in these areas, a peacetime requirement for three deployed carriers in the Pacific, and two in the Mediterranean, has been established.

Peacetime planning factors include maintenance and training requirements, crew morale (time away from home port), and restrictions on overseas basing. These factors generate a force level of 15 carriers to maintain five attack carriers deployed as an alert, quick reaction force in these remote locations. It must be emphasized that the deployment of one-third of the total force is a routine, sustained, peacetime pattern. Should the strategic situation demand, carriers in home waters would be immediately deployed. For example, on August 1, 1969 14 attack carriers are at sea or immediately ready for sea. One more would be ready in 5 days, and the one carrier which was in overhaul, could be deployed in 60 days.

Whether 15 carriers is an adequate number under wartime conditions is questionable. It is not possible accurately to foresee the locales of future conflicts as they relate to the existence of adequate land bases, the political availability of such bases, and their survivability in action.

At the end of World War II, during which the Navy had more than 100 carriers of all types, there were 20 carriers in the active fleet which could be classed as attack carriers. By June 1950, at the beginning of the Korean war, the number of attack carriers had been reduced to seven. The loss of all of our tactical airfields in Korea during the first days of that conflict, created an urgent requirement for carriers to provide the desperately needed air support for our ground forces. Fortunately there were relatively new *Essex* class carriers laid up in mothballs in the reserve fleet. By reactivating these ships, the number of attack carriers was increased to 16 by the war's end.

Recent experience has demonstrated that a force level of 15 carriers is inadequate to prosecute the war in Vietnam and simultaneously to maintain the posture dictated by our present strategy. In recognition of this deficiency, the Department of Defense has approved a force level of 16 attack carriers for the duration of SEASIA. The Navy was able to meet this augmented force level only by employing one CVS (antisubmarine warfare carrier) in the attack carrier role.

Our capability to augment the active carrier force in time of war or crisis is almost gone. There are no attack carriers in the reserve fleet. Even the most modern of the *Essex*-class carriers cannot operate the latest generation of tactical aircraft, the F-4, A-6, RA-5C and E-2. We will soon reach the point where the *Essex*-class air wing cannot survive in the threat environment established by new Soviet tactical aircraft.

As this capability to augment the established attack carrier force from the reserve fleet or the ASW forces disappears, so does our flexibility in attack carrier force levels. It is apparent that we will fight future wars with the attack carriers in the force at the war's inception. This realization adds emphasis to the requirement for a minimum peacetime force level of 15 modern attack carriers.

In summary, a force level of 15 attack carriers of modern design is the absolute minimum requirement for our peacetime deployments and for possible contingencies. This number may not be adequate to provide the required tactical air power for every possible contingency, particularly in view of the rapid deterioration of our overseas base structure. We will be unable to compensate for the loss of overseas bases to military force or political action in the

future, by building up carrier force levels over and above peacetime levels. There are no modern carriers in reserve. The *Essex*-class CVS is rapidly losing its ability to fulfill the attack carrier role, even on an emergency basis.

Thus, there are straightforward efficiency questions to be raised about present carrier operations. Polaris forces have a significantly larger time onstation factor. The onstation time of a carrier task force is 33 percent of its crew, 33 percent; of the airplanes and aircrews, 43 percent.

One-year operating costs of a task force are estimated as follows:

CVAN -----	\$43, 000, 000
Escorts (conventional)-----	35, 000, 000
Logistics -----	36, 000, 000
Total -----	114, 000, 000×3=\$342, 000, 000

Add to this the operating costs of 23 percent of the air wing times 2.39, and the per task force operating costs of bases and rent for foreign bases. The sum of all the above is the annual operating cost of keeping a flight deck onstation for 12 months. (The total was not available for this study.)

G. Scenarios for carrier use are unconvincing

Carrier aircraft typically provide tactical air support to troops, or tactical bombing in areas where operations were not expected or areas inaccessible from permanent land bases. Additionally, carriers are claimed to be independent of bases in foreign countries, and to be less vulnerable to attack by enemy forces. Carriers also have value in showing the flag around the world.

It is generally conceded that carriers have a role only in limited war.

Carriers play an essential role in large scale conflicts. A conflict in Europe could escalate rapidly. Forward bases, POL, and stock piles could be overrun by advancing Bloc forces. Under such circumstances CVA forces could be our best and possibly our only means of providing tactical air support in a controlled response to includes tactical nuclear weapons. Tactical nuclear weapons when delivered by carrier-based aircraft are at all times in the hands of U.S. nationals and cannot be overrun by the enemy.

In large scale conflicts (and even in certain lesser conflicts), with technically sophisticated adversaries, carriers will be exceedingly vulnerable to attack.

In determining the number and type of carriers required, a number of important questions arise: How many limited wars might be fought in the next 20 years which will require American tactical aircraft before airfields can be prepared for use by military aircraft? How many wars will be fought in areas where airfields cannot be made available within range of targets?

Vulnerability is relative. Any manmade thing can be destroyed. Vulnerability can be estimated but not measured unless the enemy elects to strike. A strong U.S. Navy will deter. This has been the case in limited conflicts such as Korea and Vietnam where the U.S. Navy has operated for prolonged periods. Only the bases ashore were attacked.

An enemy who deliberately attacks U.S. naval forces must be ready to extend the war from limited to large scale conflict. All of the nonsovereign waters of the high seas would become the battlefield.

If the enemy engages in a large-scale war, all ships—warships and merchant marine—will be vulnerable in varying degrees. The carrier will be least vulnerable because of speed, maneuverability, defenses, and because the carrier seeks out and destroys the sources of the enemy's offensive capability.

It should be clearly recognized that, as the vulnerability of sea forces increase, the vulnerability of all forces ashore overseas increase. Overseas forces are supported almost wholly by sealift. By tonnage sealift represents 98 percent of the overseas movement and includes the return fuel necessary for the 2 percent which is lifted by air.

Generally speaking, we can expect our enemies to cause trouble for us in whatever location it is most difficult for us to respond. Therefore, we cannot count on having all the necessary land bases in advance throughout the world. This is becoming more evident every day as the United States tries to negotiate foreign base agreements. It gets harder and harder to hold onto foreign bases.

The area of the world covered by our overseas land base system is constantly shrinking. For example, at the end of the Korean war, this country had 551 overseas bases. Today we have less than 173. Land bases on foreign soil are vulnerable to political action. Regardless of pacts or base agreements, one nation can, as has been demonstrated repeatedly in recent years, unilaterally cancel a treaty, and our bases in that nation are lost to us. This has occurred in Morocco and in France. Even when our bases are not taken from us outright, their use can be temporarily denied to us for political reasons.

How many situations will there be where the opponents will not use or have available sufficient anticarrier weapons to make the use of carriers too risky?

Such considerations undermine the case for maintaining current carrier policies. There are few countries the United States plans to defend which will not provide basing rights. Since carriers exist, they are and will be used. But the need for 15 carriers has not been justified.

D. Several alternatives exist

What are the alternatives to the purchase of \$4 billion worth of equipment to provide one floating airfield? There are several which are less expensive.

1. *Present U.S. bases.*—Though of limited use for tactical air operations, fixed bases can be operated at a fraction of carrier operating costs, and should be used whenever possible.

However, 85 percent of the potential contingency target land area, and about 95 percent of the world population are within the operating radius of sea-based tactical air.

Within the range of warfare situations, the greatest probability of conflict lies below the general war threshold. There have been 50 wars or near wars since the end of World War II. Yet no carrier has suffered loss or damage from hostile action during this period, in spite of the fact that all but two of the carriers in our current CVA inventory have been involved in actual combat operations since World War II.

This relative invulnerability to enemy attack in the limited wars since World War II has been due to the inherent mobility of naval forces which permits the carrier to operate beyond the effective range of weapons available to satellite forces. It is not foreseen that this situation will drastically be altered in the future, at least not until the bloc satellites have acquired high performance delivery vehicles such as modern submarines and jet bombers, and developed a significant operational capability in their use. A recent analysis, for example, shows that carriers could continue to operate in the Gulf of Tonkin and still remain outside of the range of any possible Soviet Styx surface-to-surface guided missiles emplaced at launching sites in North Vietnam. It is an important related fact that no potential North Vietnamese missile launching platform, aircraft, or PT boat, has penetrated the TF-77 defenses to within attack range of the carriers.

Exhaustive comparisons of land-based and sea-based tactical air costs have been made in detail. Results are influenced by whether or not support costs are included. When all costs are counted, there is very little difference between them. A summary of comparisons follows: (total annual cost in millions).

2. Foreign bases, airport, and inactive U.S. bases.—The Air Force is developing kits which could be prepositioned in major theaters and would turn available runways into military airfields.

Costs of three air bases—needed to accommodate one wing of aircraft total \$245 million capital investment and \$39.5 million annual operating expenses.

3. New base construction.—This was done in South Vietnam at a fraction of carrier construction.

	Sea-based favorable	Best estimate	Land-based favorable	Average
Land-based wing-----	603	494	394	497
Sea-based wing-----	451	538	566	518

The bare base kit includes over 6,000 people, 7,000 tons of cargo and 1,500 vehicles in its initial lift. It then must be maintained by a logistic resupply flow of 3,200 tons of consumables daily.

There is a declining inventory of overseas bases available for combat operations of U.S. tactical aircraft. Use of many existing bases could be denied to United States on little or no notice due to rapidly changing political situations. Operational U.S. Air Force overseas bases have declined in number from 105 (in 1957) to 35 (in 1968).

Retaining existing U.S. land air bases on foreign soil or adding new ones can involve additional U.S. political and military commitments in exchange for base rights which may be far more onerous than dollar costs.

Overseas land bases are dependent on keeping the sea lanes open for logistic support. 98 percent of supplies, material, and equipment in the case of the Vietnam war, are sent by sea lift. In many areas adequate air defense of our sea lanes can only be provided with carrier aircraft.

Experience in Southeast Asia demonstrates that after agreement is reached with the host country and construction of a new base is started, it takes about 9 months to put a new air base in operation.

The investment in a land base has an assured return only as long as the base is needed in the specific location, and international and political conditions do not deny or restrict its use when needed.

The cost of operating aircraft from carriers, moreover, is significantly greater than from land. In sum, the size of our carrier forces should be determined by the areas in which we might become involved where there are no adequate air bases and none can be constructed.

E. Carriers are extremely vulnerable

The statement has already been made that carriers would have to be deployed only when the carrier air defenses were sure to have air superiority. It has also been mentioned that 23 percent of a carrier's air wing would have to be held back for defense. Carriers are very difficult to defend.

The large investment is lost as soon as the particular job is finished for which the base was created. The investment in an aircraft carrier remains valid for the 30-year life of the ship.

Land bases are subject to air and ground attack. Despite the precautions taken in Southeast Asian air bases, 300 aircraft have been lost and 3,000 damaged while on the ground at U.S. air bases since the start of the Vietnam war. These figures included 12 aircraft destroyed and 36 damaged by an accidental bomb explosion at Bien Hoa air base. During the Korean war virtually all the tactical air basis in South Korea were overrun by enemy ground forces.

Carriers are no more vulnerable than any other deployed weapon system, and are less vulnerable than overseas land bases, particularly below the threshold of nuclear war.

Although their inherent mobility makes carriers difficult targets for an enemy to find and attack, and although they operate in a fleet complex which includes defensive aircraft and escort ships, carriers themselves are designed to absorb damage from enemy action with minimum disruption to their operational capability. In this sense, carriers are extremely tough ships.

No attack carrier built during World War II or subsequently has ever been lost to enemy action or to any other cause. The *Essex* class, many of which are still in service, fought through air and kamikaze attacks of World War II. The newer attack carriers have had more extensive protection features, such as armored flight decks and torpedo side protection systems incorporated in their design as the result of World War II experience and lessons learned since.

Threats to carriers are many : from submarines, ship-to-ship missiles, enemy aircraft, air and land-based missiles, and accidents. To counter these threats are the anti-submarine warfare (ASW) capability in the carrier task force, the carrier's aircraft (and their airborne missiles), ship-mounted missiles, electronic warfare devices, accident prevention procedures, and the carriers' mobility.

But despite this impressive (and expensive) defensive capability, the vulnerability of carriers is generally felt by Pentagon planners to be great.

ASW is a difficult proposition. The Navy apparently has no defense against the Russian Styx antiship missile (there is even an apocryphal story that the U.S. Navy resisted the development of a similar missile for the United States because it would show how vulnerable the carriers were).

Also, since a carrier is a floating fuel and ammunition dump, the smallest accidents can lead to very great losses as was the case with the *Enterprise* fire and other tragedies.

F. Replacement policy should be reviewed

The size of the carrier fleet (15) has been maintained through the adherence to a schedule of construction and deployment that calls for a new carrier to be built to replace each carrier removed from the fleet.

The recent accidental fire and explosions aboard the *Enterprise* demonstrate the toughness of the modern carrier. The flight deck was subjected to a number of major explosions. Yet, *Enterprise* could have resumed air operations within hours, as soon as the debris was cleared from the after end of the flight deck.

As was pointed out above, carriers could continue to operate in the Gulf of Tonkin and still remain outside the range of Styx surface-to-surface guided missiles if emplaced at launching sites in North Vietnam. It is again stressed that no potential North Vietnamese missile launching platform, aircraft, or PT boat, has penetrated task force defenses to within range of the carriers.

As pointed out above, the recent accidental fire and explosions aboard the *Enterprise* demonstrate the toughness of the modern carrier. The flight deck was subjected to a number of major explosions. Yet, *Enterprise* could have resumed air operations within hours, as soon as the debris was cleared from the after end of the flight deck.

The *Nimitz* class carriers are required regardless of operating force levels.

The Navy's carrier force must have a continuous input of new ships, both to constantly upgrade the capability of the force through the infusion of modern technology, and to replace older ships which can no longer meet the requirements demanded of an attack carrier because of design limitations and the fact that old ships simply wear out.

Within a 15-carrier-force level, for example, the construction of a new carrier every other year means that attack carriers will reach an average age of 30 years before they are replaced.

This procedure requires closest scrutiny in light of the facts that (1) the cost of new nuclear powered CVAN's is twice as great as the cost of new conventionally powered CVA's,

Although the overall capability of the carrier force must be sustained regardless of its size, the capability of individual ships becomes more important as the total number becomes smaller. This consideration, coupled with the fact that the U.S. Navy is rapidly losing its ability to mobilize additional carriers, reinforces the pressing need for the *Nimitz* class.

Carriers are not an expensive weapons system, on either an investment or operating cost basis, when compared to alternative systems, and particularly when their long life and active utilization are considered.

An Air Force tactical air wing has about the same number of attack aircraft as a carrier air wing. The relative investment and operating costs vary for different situations but overall costs are about the same when basing, support, logistic, and defense costs are considered for both.

The investment in an attack aircraft carrier has an assured return for about 30 years. During this time the carrier can provide an air base anywhere in the international waters of the world without prior international agreements or U.S. commitments in exchange for base rights. Of the 44 carriers built by the Navy since the *Langley*, CV1, in 1922, which would today be classed as attack carriers, 41 have participated in combat. One of these, *Bon Homme Richard*, has been in action in three wars.

The principal advantages afforded by nuclear propulsion to surface warship derive from their ability to steam at high speed for unlimited distances without refueling. In the carrier, there are important additional benefits. Because the nuclear carrier does not have to carry black oil for propulsion, there is more room in the ship's hull for aviation fuel and other combat consumables. This gives the nuclear carrier greatly increased combat staying power compared to its conventional counterpart.

These two qualities give the CVAN a capability unmatched by any other tactical air system, sea-based or land-based. This is the ability to:

Respond immediately to a contingency beyond the range of emplaced U.S. forces without waiting for supporting units or the repositioning of logistic support.

(2) the capability of new CVAN's and CVA's is significantly greater than that of the carriers which they are replacing (hence, with each new carrier the total carrier capability increases).

Conduct combat operations while approaching the objective area. Continue combat operations without support or replenishment for the period of time required to establish sea-based logistic support lines.

An all-nuclear carrier task force can steam at high speed to any point on the oceans of the world and conduct maximum sustained air operations for many days entirely without logistic support. An all-nuclear carrier task force also has the capability to transit at high speed to and from distant and less vulnerable sources of ammunition, aviation fuel, and other supplies needed to continue in action.

As the number of nuclear submarines and air striking capabilities of our potential enemies increase, the difficulty of providing logistic support when supply lines to our combat forces are under attack will increase. A principal reason for developing nuclear power for surface warships is to reduce the logistic support required for our fighting forces.

Attack carrier force levels are determined by the amount of tactical air required and the portion of the total requirement that it is efficient and economical to operate from sea bases.

The *Nimitz*-class carriers are needed to maintain the capability of the carrier force.

In order to provide the capability to respond to threats in widely separated geographical areas, and conduct operations throughout the spectrum of warfare alternatives on a sustained basis, carriers must be able to conduct operations at sea against determined opposition, with aircraft capable of achieving air superiority against first line enemy equipment.

The new *Nimitz*-class carriers are required to replace the older carriers in the fleet and provide the large decks and aircraft support facilities necessary to support the modern aircraft required to meet the current and projected Soviet air threat. It is not practical or economical to attempt to further modernize the *Essex*-class attack carriers. These ships have previously been converted from straight deck, hydraulic catapult configuration, to angle deck, steam catapult equipped ships. No growth factor is left. They cannot operationally support several of the new aircraft (F-4 Phantom II, RA-5C Vigilante, A-6 Intruder, E-2 Hawkeye, F-14). A significant fact is that these older carriers experience about twice the landing

accident rate with attendant higher cost in lives and aircraft, compared with the larger deck *Forrestal*-class. The problem is simply that aircraft size and speed have become excessive for the smaller size World War II carrier decks.

As was pointed out above, the total number of U.S. overseas bases has declined from 551 at the end of the Korean War to less than 173 at present. Operational U.S. Air Force overseas bases have declined in number from 105 (1957) to 35 (1968).

(3) the continuation of the present replacement policy assumes that the threat which the United States is trying to meet with such a force is increasing. On the contrary, however, the United States is much more secure in terms of available worldwide land bases than was the case in 1950.

C. Foreign Policy Implications

In the late 1940's and early 1950's, the Pentagon emphasized the role of carriers in strategic bombing. Now the rationale focuses on tactical utility. A major issue, then, is the cost and effectiveness of land as compared to sea-based tactical aviation. The emphasis on the tactical role of carriers, moreover, suggests important foreign policy implications inherent in our willingness to continue deploying them in the present quantities. The current carrier complement implies that we expect to fight in unanticipated localities. It implies a willingness to go anywhere to assert military pressure in the stance of "world policemen." Whether or not we wish to continue in this direction is a matter for Congress to decide, and should not be the indirect result of Pentagon decisions to deploy.

SUMMARY

The U.S. Navy operates 15 attack carriers. At present, one is nuclear and 14 are conventionally powered. Construction of a second nuclear carrier (CVAN-68) began in 1968, for planned accession to the fleet in 1972. A third nuclear carrier (CVAN-69) is to be completed with funds from the fiscal year 1970 budget. A fourth nuclear carrier (CVAN-70), has been authorized and is expected to join the fleet in 1976. As each nuclear carrier enters the fleet, a conventionally powered vessel will be transferred to the antisubmarine warfare forces or retired.

The plan to build three nuclear-powered carriers of the same class on a precisely planned and managed schedule is based upon the best technical and economic practices for series procurement of large and expensive military items in the industrial market of today. Nuclear carrier procurement is expensive, as is any new weapon system which provides our defense forces with improved capabilities. However, the lack of a firm shipbuilding plan supported by adequate funding for long leadtime planning and procurement that would result from disruption of the existing program and its committed industrial base would be inimical to the long range interests of the Nation and the goal of maintaining a strong future Navy.

We need these ships to provide large decks and adequate facilities to support modern aircraft that are required to meet the current and projected naval, ground, and air threats. There is no technological forecast that predicts the replacement of the manned aircraft as a tactical weapon system. Tactical air power is an essential component of the general purpose forces required by our national strategy in the foreseeable future. The continuing erosion of overseas bases provides strong justification for sea-basing a substantial segment of our tactical air power in aircraft carriers. The World War II—*Essex*-class carrier has no more growth potential as an attack carrier, and its present performance in this role is therefore limited to a few aircraft types still compatible with its facilities. These ships can and should be replaced as attack carriers and converted for use as antisubmarine carriers. Regardless of any forthcoming decision on carrier force levels, an orderly shipbuilding program for procuring a minimum of one new carrier every other year is essential to maintaining an adequate baseline inventory of aircraft carriers with an average expected useful life span of between 20 and 35 years.

The nuclear-powered attack carrier, with its unique capabilities of endurance and relative logistical independence, will be as essential an instrument of national policy in the future as it is today. It is in consonance with national interests for us to continue to revitalize the carrier force that provides the backbone of U.S. naval seapower as well as a source of tactical air seabases that are usable across the spectrum of military application anywhere we need to place them in international waters of the world at any time. The importance of the carrier as a mobile tactical airbase will expand as our overseas basing structure shrinks. Finally, the carrier force capability must continue to match the projected threat, and it can do so only if modernized by new construction. Therefore, the funding for nuclear-powered attack carrier procurement in this budget is fully justified on the basis of logic and wisdom in support of the national defense posture of the present and future.

The capital cost of the nuclear carrier, its escort vessels, logistic support and aircraft for fleet defense totals about \$1.3 billion. Since only 1 out of 3 attack carriers and its support is on station at any one time, the total investment for each carrier on station is almost \$4 billion.

RECOMMENDATIONS

Congress should withhold authorization of \$377 million for construction of the nuclear attack carrier, CVAN-69. Construction should be delayed for 12 months pending congressional review of (1) the role of carriers in plausible contingencies including the number required and their relative effectiveness, (2) the vulnerability of carriers to hostile action, (3) the 1-for-1 replacement policy, and (4) foreign policy implications of the carrier force.

Deferral of the funding required this year to continue procurement of this ship would have the following undesirable effects.

A delay in ship completion which will reflect directly and adversely upon the needed improvement in combat capability of the aircraft carrier inventory and which will increase the retirement age of the *Essex*-class ships. As presently planned, CVAN-69 will join the fleet in 1974 to replace the *Bon Homme Richard*, a veteran of World War II, Korea, and Vietnam. Projections of threat elements, along with overall trends in world affairs and the dubious availability of our overseas bases make it essential that the carrier program be continued.

A disruption of the established continuity of present production processes in the nuclear power and shipbuilding industrial base, which, when combined with the effects of last year's deferral and the estimated cost rises of another deferral, will not only seriously jeopardize the present program but will act to reduce the existing and future national potential for regular and emergency defense construction of nuclear-powered capital ships. With the increase in civilian and other military orders in the heavy equipment industries, industrial organizations are increasingly less willing to make long-range commitments without firm orders. Consequently, the price and delivery of major machinery components not covered by firm orders are subject to considerable uncertainty. Thus the delay could be greater than just a day's delay in delivery for each day's delay in order placement.

MODERNIZED VERSUS NEW CARRIERS

Mr. MAHON. You said that the *Essex*-class carriers cannot operate several of the newer aircraft. Could we modernize more of our existing carriers rather than build new ones?

Mr. LEIGHTON. New carriers are required to provide large decks and aircraft support facilities necessary to support the modern aircraft required to meet the current and projected Soviet air threat.

It is just not practical or economical to attempt to further modernize our older carriers. The *Essex*-class carriers have been converted from their World War II straight deck, hydraulic catapult configuration to angle deck, steam catapult configuration. They have been magnificent ships but they have just about reached the limit of their capabilities. There is no growth factor left. As I said earlier, they can't operate in combat several of the newer aircraft. A significant fact is that for the past 4 years they have experienced more than double the landing accident rate as compared with the record of the eight large deck *Forrestal*-class carriers and the *Enterprise*. The problem is simply that aircraft size and speed have become excessive for the smaller size of the World War II carrier decks.

As the older carriers have been modernized and improved to keep them capable of operating jet aircraft, they have taken on more equipment which requires more electrical power. This additional equipment has intruded into living spaces, making them less habitable and more crowded because, at the same time, the newer aircraft and support and test equipment have required more people. As an example, when the *Ticonderoga* recently replaced two A-4 squadrons with the newer A-7 aircraft, 200 more enlisted men had to be brought aboard. The Navy has to berth many men in working spaces in these ships.

Even for the *Midway* class, which is larger and newer than the *Essex* class, the high cost of the current *Midway* modernization has caused the Navy to abandon its plans to modernize her sister ship, the *Franklin D. Roosevelt*. The third *Midway*-class carrier, the *Coral Sea*, was modernized in 1960.

To provide the capability to respond to threats in widely separated geographical areas and conduct operations throughout the spectrum of warfare alternatives on a sustained basis, the carriers must be able to operate at sea against a determined enemy, and launch aircraft able to achieve air superiority against whatever they encounter. Therefore, regardless of the specific force level approved at any particular time, it is important to continually introduce modern technology to the fleet. This requires periodically building new ships capable of countering the continually increasing capabilities of our potential enemies.

The attack carrier in the seventies must be able to operate against the opposition of the Soviet Navy and launch aircraft able to outperform or at least equal Soviet aircraft. This requires new, large deck carriers with aircraft facilities capable of supporting the modern aircraft required to counter the projected Soviet air threat. The Navy considers that the aircraft which can be operated off an *Essex*-class carrier will not be able to survive against the expected Soviet air threat of the late 1970's.

The combat capability of the air wing for a new CVAN is over twice that of an *Essex*-class carrier, because of the number and combat capabilities of the types of airplanes you can operate off a new CVAN compared to the *Essex*-class carriers.

This is without giving any credit for the tremendous increase in high-speed endurance and staying capability that nuclear propulsion gives the the new CVAN itself. As your committee has long recognized, the Navy needs more surface warships with the great advantages nuclear propulsion provides. Nuclear propulsion can only be provided by building new ships.

NAVY AND DEPARTMENT OF DEFENSE POSITION ON NUCLEAR POWER

Mr. MAHON. Do the Navy and the Department of Defense accept the concept that new attack carriers should be nuclear powered?

Mr. LEIGHTON. Yes, sir. The Navy has officially recommended that all new attack carriers be nuclear powered and insofar as I know the Department of Defense has accepted that position.

This committee, of course, has taken a position of leadership in the issue of providing nuclear propulsion in new warships. Everything that has happened in the last year has continued to indicate the wisdom of providing nuclear power in any new major warships we build.

The Navy's recommendation for nuclear power in surface warships is based on the improvements in readiness, response, mobility, tactical flexibility, and survivability which derive from being independent of propulsion fuel logistic support. These improvements are important in all circumstances and could be decisive in many.

DOD REPORT TO CABINET TASK FORCE ON OIL IMPORT CONTROL

The Department of Defense response to the Cabinet Task Force on Oil Import Control established by the President a few months ago stresses that an essential consideration in the conduct of war is the supply of propulsion fuel for military vehicles of all types—land, sea, and air. The history of modern war is replete with examples in which the lack of propulsion fuel was a controlling factor, and with examples of offensive operations which were restricted in scope and success by inability of the logistic support forces to provide adequate propulsion fuel.

The Department of Defense report states:

The part that oil plays in the defense posture of the United States is vitally important. It is a strategic material and one of the few items that is absolutely essential and foremost in the minds of military commanders. Along with weapons and ammunition, the needs of petroleum get the most attention. Petroleum cannot be stockpiled like hardware—the quantities required are too great, nor can our military forces operate very long without backup support from refinery and production sources. * * * The vital role of oil in any defense effort is crystal clear. Information available today indicates that, with few exceptions, military equipment will continue to derive energy from liquid petroleum and its products for some time to come.

In 1949, military petroleum requirements were about 330,000 barrels per day and by 1967 they exceeded 1 million barrels per day—a threefold increase and the curve continues upward.

The Department of Defense oil bill for fiscal year 1969 will be over \$1.7 billion for approximately 444 million barrels of product. We are still the world's largest single oil purchaser. The very chance of success or failure in any conflict hinges

on oil. As a matter of fact, the most striking point of commonality between the major weapon systems of the military departments is the thirst for oil. Subsonic tactical aircraft are being replaced by supersonic fighters which burn two to three times as much fuel per hour as the jet fighter used in the Korean conflict. The continuing mechanization of Army equipment and greater mobility of its troops assure a steady increase in its fuel requirements. While some Navy ships are now propelled by nuclear power, it will be many years before there is any appreciable decrease in the Navy's petroleum requirements.

In Southeast Asia today, about 50 percent of the military tonnage consists of petroleum products. While only about 10 percent of the petroleum required to support the war effort is supplied from the United States (with about 65 percent from the Arabian Gulf and 25 percent from the Caribbean and local sources) we must maintain a capability in the United States to supply our war needs in case foreign sources are denied, as they were for a short time (7 to 10 days) during the 1967 Middle East crisis.

In fact, the Middle East crisis posed the most severe test of the DOD petroleum system in recent years. It didn't last long enough to have any real impact, but we can draw some object lessons from it.

For example, it showed that:

Our system is delicately balanced.

Prolonged interruptions cannot be tolerated.

U.S. domestic petroleum capability must be available to meet military need in case normal foreign sources are denied. These denials can take many forms. For example, a denial of a supply source in a normally friendly country, which may not at the time be in sympathy with our cause, can be just as final as the destruction of those sources by enemy action.

* * * it is impossible to predict the place, time, scope, and contestants in any future emergency; hence, our logistics planners face a continuing challenge. It, therefore, follows that our national security extends far beyond the shores of the United States. The Department of Defense reaffirms that it is in the best interests of the United States and, in fact, our national security dictates that we have in existence dependable, capable, and willing overseas sources to satisfy out petroleum needs on a global basis * * *.

A protracted conventional war would require large and continuing military operations and a sustained high rate of petroleum consumption, probably in excess of the 588 million barrels consumed annually at the peak of World War II. Protracted conventional war would undoubtedly involve some of the world's oil supplying nations. Destruction of oil production, distribution and refining capabilities by direct attack or sabotage could be expected on a large scale, severely affecting supply of oil to the Western world.

In the event of a disruption of supply, the storage of military products in potential combat areas provides only short-term supply pending the reestablishment of an adequate supply system. The storage of oil in forward areas to meet military requirements for an extended period of time is not feasible. The cost to construct and maintain such large storage and distribution systems would be prohibitive. Such large concentrations would also be ideal enemy targets, and high losses could be expected. Wartime requirements, both military and civilian, must depend on the viability of the in-being production base, and transportation

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National security dictates that adequate supply of oil must be available to meet military and essential civilian needs during period of emergencies. Dependence on oil is absolute. Neither the Armed Forces nor the economy could continue operations for very long without an adequate supply, though rigid control of end-use can certainly greatly reduce the level of supply which must be assured. The military demand which would be a part of the minimum assured supply level per day under conventional war conditions lasting 1 year or more is estimated at approximately 1.8 million barrels. By comparison, during the present limited war overall military requirements are about 1.1 million barrels per day, of which about 660,000 barrels a day are being supplied from domestic sources * * *. Under the conventional war situation which would produce greatest impact on the U.S. military requirements, foreign producing and refining sources which may have been denied in the early stages should be reestablished at the earliest moment to ease the strain on the U.S. supply system, and enhance capability to meet the vital needs of allied nations also engaged. Adequate U.S.-flag or U.S.-controlled shipping must be available to move U.S. crude oil to

existing refineries dependent on waterborne supplies, much of which is now foreign crude arriving in foreign-flag vessels, which might not be available under emergency conditions.

* * * * *

It is difficult to compare a commodity such as oil with other strategic materials and establish a relative degree of danger insofar as interruption of off-shore supply is concerned. However, some factors of significance can be set forth for consideration:

(a) Almost 15 percent of U.S. oil imports come from the Middle East and North Africa, which are probably the most politically unstable areas in the world.

(b) The volume and tonnage of oil imports and other military off-shore oil supplies is far greater than for any other strategic material. Oil is thus much more apt to present a tempting and vulnerable target for those who would deny it to the United States, either politically or militarily, during a crisis or in wartime.

(c) The nature of oil and its transport in specialized vessels makes it more vulnerable to high seas interdiction than is the case for other materials moving in conventional vessels denying selective hostile action by enemy forces.

(d) All other factors being equal, the possibility of an interruption in off-shore supplies of oil presents a more vital and immediate hazard to the Nation than would be the case for other materials which can be stockpiled in advance of need, before an emergency, or even during it, at times of low levels of enemy action. The sheer bulk of oil's daily usage precludes any such extensive stockpiling against national and defense needs. Thus, interdiction of oil supplies is dangerous to the Nation at any time.

(e) The substitution of other materials, which can mitigate loss of certain strategic items, is not generally possible where oil is concerned. There is no known energy source which can replace oil in a strategic bomber or a tank, nor for that matter, in a truck, bus or diesel-powered train. Full conversion of sea-power and transport to nuclear energy is still far in the future.

Your committee has long recognized that the vulnerability of our logistic supply lines required to sustain Army, Air Force, and Navy forces in combat and to sustain our industry is greater today than at any time in the past and is continuing to increase for the following reasons:

The increased threat of submarine attack because of the advent of nuclear powered submarines and improvements in conventional submarines.

The increased threat of air attack because of the increased range of aircraft and missiles and their improved ability to detect targets.

The amount of fuel which must be transported has increased because of the higher consumption rate of post World War II military units.

Each tanker lost now has a many-fold greater impact because of the substitution of a smaller fleet of larger tankers for the large fleet of small tankers used in World War II. As Admiral Rickover mentioned earlier, most tankers then displaced 10,000 to 15,000 tons, the largest being about 25,000 tons. Presently, many tankers are over 100,000 tons and plans are being made to build tankers of 500,000 tons and larger.

As the number of nuclear submarines and air strike capabilities of our potential enemies increase, the difficulty of providing logistic support when supply lines are under attack will increase. A principal reason for developing nuclear power for surface warships is to reduce the logistic support required for our firstline striking forces.

The major advantages afforded by nuclear propulsion to surface warships derive from their ability to steam at high speed for virtually unlimited distances without refueling. For the carrier, there are important additional benefits. Because the nuclear carrier does not have

to carry black oil for propulsion, there is more room within the ship's hull for aviation fuel and other combat consumables. This gives the nuclear carrier greatly increased combat staying power compared to its conventional counterpart.

These two qualities give the CVAN a capability unmatched by any other tactical air system, sea-based or land-based. This is the ability to:

Respond immediately to a contingency beyond the range of emplaced U.S. forces without waiting for supporting units or the prepositioning of logistic support;

Conduct combat operations while approaching the object area;

Continue combat operations without support or replenishment for the period of time required to establish sea-based logistic support lines.

If the threat to logistic supply lines is too great in the combat area, nuclear propulsion provides the capability to transit at high speed to and from distant and less vulnerable sources of ammunition, aviation fuel, and other supplies needed to continue in action.

CARRIER VERSUS LAND-BASED AIR FORCES

Mr. MAHON. Would you comment on the use of nuclear aircraft carriers as opposed to the use of land-based air forces?

Mr. LEIGHTON. The basic answer to your question, sir, is that tactical aircraft, land-based or sea-based, have a nominal range of about 600 miles from their bases. Therefore, to provide the worldwide coverage of tactical aircraft needed to support our national objectives, we must have both land-based and sea-based tactical air.

Land-based tactical air can be effectively employed only when adequately prepared, provisioned, and defended air bases are available within tactical air radius of a particular area of interest. The area of the world covered by our overseas land-base system is constantly shrinking. For example, the United States now has only one-third the overseas bases we had at the end of the Korean war.

Over half the operational U.S. Air Force overseas bases we had a dozen years ago have been relinquished. Use of many existing bases could be denied to the United States on little or no notice due to rapidly changing political situations.

Several basic facts must be borne in mind, sir; for example:

Three-fourths of the earth's surface is covered with water.

About 85 percent of the world's land where we might expect a contingency to develop, and about 95 percent of the world's population are within range of attack carrier aircraft.

Most supplies, material, and equipment for overseas operations must go by sealift—98 percent in the case of the Vietnam war. We must be prepared to provide tactical air protection for our sealift when it is within range of enemy tactical air striking capability.

An all-nuclear carrier task force can steam at high speed to any point on the oceans of the world and conduct maximum sustained air operations for many days entirely without logistic support. As I mentioned earlier, an all-nuclear task force also has the capability to transit at high speed to and from distant and less vulnerable sources of ammunition, aviation fuel, and other supplies needed to continue in action.

The purpose of attack carriers is to provide tactical air power for our general purpose forces. This is also the function of the Tactical Air Command of the U.S. Air Force. Both sea-based tactical air and land-based tactical air are needed to support the forward deployed general purpose forces concept of our national strategy.

Land-based air is used when well developed, adequately protected overseas bases are available, with prepositioned fuel and ordnance.

Sea-based air is required in those parts of the world where protected land bases are not available within tactical air radius of our areas of interest.

The attack carrier force level is determined by the size of the sea-based segment of our total tactical air requirements generated by our national strategy.

The Chief of Naval Operations has pointed out that:

The mobility of sea-based air makes it a valuable instrument in support of U.S. foreign policy, thus contributing to the avoidance of conflict and to the strengthening of alliances. Navy mobile striking power can be effectively applied in all levels of warfare—from nuclear exchange to contingency action. Current political trends are such that smaller contingencies requiring rapid response can be expected to continue to occur—other Koreas, Cubas, Dominican Republics, Vietnams. Sea-based air is not only ideally suited for these actions but is in some cases the only tactical air that can be expeditiously and efficiently employed.

Both land-based and sea-based tactical air have advantages and disadvantages, strengths and weaknesses. For example:

There are not sufficient land airbases available to the United States to provide air coverage in all potential contingency areas.

Existing land airbases are vulnerable to loss or restriction in their use due to political considerations even in peacetime. For example, when France pulled out of NATO, a significant part of the U.S. Air Force overseas base investment was lost.

Retaining existing U.S. land airbases on foreign soil or adding new ones can involve additional U.S. political and military commitments in exchange for base rights which may be far more onerous than dollar costs.

Attack aircraft carriers have the advantage that these mobile air bases can be deployed or withdrawn to meet changing international situations without changing our overall tactical air capability or adding to our international commitments.

Aircraft carriers can provide rapid response in areas beyond the range of available land bases. Experience in Southeast Asia demonstrates that after agreement is reached with the host country and construction of a new base is started, it takes about 9 months to put a new airbase in operation. In an attempt to shorten the time required to get a base in operation, the Air Force is developing "kits" to be used for converting available runways into military airfields. For one tactical wing—the equivalent to one carrier air wing—a kit includes over 6,000 people, 7,000 tons of cargo, and 1,500 vehicles in its initial lift. They must be maintained by a daily logistic resupply flow of 3,200 tons of consumables. To provide this daily resupply of one wing by air would require more C-5A aircraft than are planned in the total inventory.

Both carrier and land-based overseas tactical air are dependent on keeping the sea lanes open for logistic support. It is simply not prac-

ticable to provide the bulk of the required logistic support by air. In many areas adequate air defense of our sealifts can only be provided with carrier aircraft. Further, most of the supplies and material for overseas operations go by sea. If these supply lines were attacked, aircraft carriers would be required to defend the sea lanes to assure that the necessary logistic support is made available for the other Services to carry out their missions.

An Air Force tactical air wing has about the same number of attack aircraft as does a carrier air wing. Many studies have been made over the past 10 years of the relative cost of providing a land-based versus a sea-based tactical air wing. The studies conducted by the Navy show the cost of sea-based air to be about the same or cheaper than land-based air. The studies conducted by the Air Force show land-based air to be cheaper.

According to the assumptions you make, either of these systems can be shown to be cheaper than the other; the result depends on the assumptions made.

If you assume, for example, that the war takes place in an area where you already have a land base, and you assume you do not need troops to defend the base, then you do not charge those costs to the land-based aircraft. Those people who make calculations that way often assume, on the other hand, that the Navy has to build a new aircraft carrier and has to build new defensive forces to support the carrier and thus charge these costs to sea-based aircraft. Studies based on these assumptions naturally conclude that land-based airpower is cheaper.

You can make another set of assumptions which say we must build new land bases and we must defend them. When you consider base construction costs, defense costs, and logistic support costs for a land-based air wing and compare these to equivalent costs for a sea-based air wing, then the Navy has many calculations to demonstrate that the overall cost is approximately the same between a land-based and a sea-based tactical air wing.

The relative cost varies, of course, depending on whereabouts in the world you assume the war will occur. However, a fundamental consideration in real life is that generally our opponents pick places to fight where we are not as well prepared as we would like to be. They can be expected to pick a fight where it will be as hard as possible for us.

Mr. FLOOD. What is unusual about that?

Mr. LEIGHTON. Nothing at all, sir. You can make all the studies you want on a theoretical basis. When you come down to the hard facts of reality you will find that the enemy will always pick the fight in a position difficult for the United States to reach.

For example, look at the experience in Vietnam. When it was decided to initiate the bombing of North Vietnam, carriers provided the first strikes. By the time the bombing was stopped about half the total air strikes in North Vietnam had been flown from carriers. It took about 2 years to build up the land airbase complex once the decision was made to do so.

Even with the extensive land base system finally put into operation, the average base-to-target distance for land based aircraft was about 30 percent farther than for carrier based aircraft. This was because

the mobility of the carriers permitted stationing them closer to the targets. The longer base-to-target distances generated a heavy aerial refueling support requirement for land based air operations. During calendar year 1967, for example, Air Force tankers flew nearly 100,000 hours in support of tactical air operations into North Vietnam. The direct and indirect cost to operate these tankers in that year was over \$130 million.

When the land base complex supporting the bombing campaign in North Vietnam was brought into operation, the Joint Chiefs of Staff reviewed the desirability and feasibility of cutting back attack carrier operations in the Tonkin Gulf by further increasing the amount of land-based air strikes. The Commander in Chief of the Pacific, CINCPAC, was asked to evaluate this proposed trade-off of land-based air for sea-based air. As Commander of a Unified Command, he was responsible for both the land-based and sea-based air forces. In January 1968 he submitted an analysis of the factors involved in such a tradeoff from which he concluded:

The preceding analysis indicates that the disadvantages involved in a trade-off of CVAs for land-based air outweigh any advantages which might accrue, operational considerations alone indicate that we should hold fast to our current flexible and balanced-basing arrangement. When we examine the high costs in money, men, and material along with the political and economic considerations, it is apparent that a trade-off is neither practical nor desirable.

CINCPAC is opposed to a cutback of CVA operations in the Tonkin Gulf in favor of land-based air in the current situation.

CINCPAC based his conclusions on an analysis which showed that: Approximately five Air Force tactical fighter squadrons would be required to produce the monthly sortie rate of each attack aircraft carrier. Depending on where the Air Force squadrons were based, it would require approximately 20 aerial tankers to provide in-flight refueling for these five additional land-based squadrons.

Sufficient land bases for the additional squadrons and tanker squadrons were not available in Southeast Asia.

The logistic support problem for additional land-based squadrons in Southeast Asia would be difficult. For example, the existing aircraft fuel distribution to Air Force bases in Thailand at that time involved over 500 trucks and all available railroad tank cars. The necessary additional fuel logistic support if additional land-based aircraft were to be based in Thailand would require approximately 300 additional trucks or construction of a \$25 million pipeline.

Additional ammunition shipments into Thailand would require approximately 3,000 tons per month per aircraft carrier replaced. The seaport and transportation facilities existing in Thailand would have had to be enlarged to meet the requirement for ammunition and other cargo to support added fighter squadrons.

The intra-Thailand airlift requirements would be about doubled if three aircraft carriers were replaced.

Additional communications facilities and personnel would be required in Thailand and additional communication links to locations outside Thailand.

CINCPAC estimated that it would take approximately a year to construct new bases for the attack aircraft and approximately 18 months to construct new bases for the aerial tankers. His analysis estimated the construction costs for bases to replace three attack carriers would be

about \$300 million, including the additional logistic and communication facilities required.

With regard to providing security for the expanded forces CINCPAC stated:

Basing the additional tactical forces in Thailand would add a new dimension to existing security problems which are the responsibility of the Thai military and police forces. There is increasing infiltration in northeast Thailand. Additional U.S. bases create additional targets for possible enemy subversive/ clandestine or overt attacks. In this situation, we rely upon the Thais to furnish adequate security. The Thais could be expected to respond to these increased requirements by a justifiable request for added helicopters, mobility, arms, and munitions to equip the Thai security force. Lacking that, there would be a need to increase further the U.S. Forces charged with security. This, in turn, would increase the logistics requirements which must be satisfied in the up-country areas. There would be further requirements for cantonment construction and other facilities.

CINCPAC pointed out that expanding the land-based air forces in Thailand might be difficult to arrange with the Royal Thailand Government, RTG. He noted:

The RTG is scrutinizing ever more closely at a high level each deployment by the United States to Thailand. Further substantial expansion of the U.S. military presence in Thailand would exacerbate the unfavorable aspects of the U.S. military impact in Thailand and would be looked on with great reserve by the RTG. Removal of the U.S. Navy strike capability from the Tonkin Gulf and replacing it in Thailand would be considered by the RTG as placing an unreasonable burden on Thailand expenditures for construction of permanent facilities/ installations to support the additional land-based air system would adversely affect our gold flow and create inflationary pressures on the Thai local economy. In addition, these expenditures would be for the most part nonrecovery.

You can see from this specific example taken from actual experience that the determination of the relative cost and desirability of land-based and sea-based tactical airpower is dependent on the actual circumstances prevailing in the specific location for which a choice must be made and must include consideration of many unforeseen and intangible factors.

In any case when you decide to leave the area of conflict, the land bases you built are no longer of use; they will be put in reserve status or be overgrown by weeds. You have to build other ones to operate somewhere else.

An aircraft carrier can be moved from one place to another. The investment in an attack aircraft carrier has an assured return for about 30 years. During this time the carrier can provide an airbase anywhere in the international waters of the world without prior international agreements or U.S. commitments in exchange for base rights.

Of the 44 carriers built by the Navy since the *Langley*, CV-1, in 1922, which would today be classed as attack carriers, 41 have been in combat. One of these, *Bon Homme Richard*, has been in action in three wars. Only three have not been in combat; the *Midway*, which is currently being modernized, and the *Saratoga* and the recently completed *John F. Kennedy* which are currently assigned to duty in the Mediterranean.

ARTICLE ON CARRIER EMPLOYMENT SINCE 1950

I have with me copies of an article from the November 1964 issue of the Naval Institute Proceedings by Admiral McDonald, our previous Chief of Naval Operations, which bears on this subject. This article discusses attack carrier operations during the many interna-

tional crises since 1950 and points out clearly the value of attack carriers to our national interests.

Mr. FLOOD. Could you provide that for the record?

Mr. LEIGHTON. Yes, sir, I would be happy to.

(The material follows:)

CARRIER EMPLOYMENT SINCE 1950

(By Adm. David L. McDonald, U.S. Navy)

(Last August, in the Gulf of Tonkin, ships and carrier-based aircraft of the U.S. Navy struck back swiftly in response to unprovoked attacks. The Chief of Naval Operations assays other crises which have occurred over the past 15 years, and the part played in them by the attack carrier.)

At this time of international tensions that require large national investments for defense, at this time when technology makes possible a wide selection of complex, costly weapons, it is well, perhaps, to back off and look at the practical results recently achieved by any given major weapon under consideration. If it is true that the proof of the pudding is in the eating, then it is true that the proof of a weapon is in its employment. Let us examine, then, the employment in recent years of one of the Navy's major weapons—the aircraft carrier.

The end of World War II found the Navy with an inventory of 24 *Essex*-class attack carriers commissioned or building, eight light carriers, 74 escort carriers, and three obsolete prewar carriers. Of the 111 carriers of all types used in the war, 11 were lost in combat, none of which were *Essex*-class. If the performance of carriers in World War II can be summarized in one sentence it is this—carrier strike forces, Japanese as well as American, always defeated land-based air forces. The issue was in doubt only when there were carriers on both sides of the battle.

At the outbreak of the Korean war in the summer of 1950, the Navy had seven attack carriers, four light carriers and four escort carriers in commission. Three of the attack carriers were of the 45,000-ton *Midway*-class—the *Midway*, *Franklin D. Roosevelt*, and *Coral Sea*, CVB's 41–43, respectively—which had joined the fleet between 1945 and 1947. The bulk of the force was in the Atlantic or Mediterranean; the Pacific Fleet included only three attack carriers and two escort carriers. The one Pacific Fleet attack carrier west of Pearl Harbor, U.S.S. *Valley Forge* (CV-45), was in the South China Sea on June 26, on the 27th she was ordered to Korean waters. En route, she was diverted to make a show of force in the Taiwan Straits because of possible Chinese Communist invasion preparations. Operating in the Yellow Sea a few days later, she launched the first carrier strikes of the war on July 3 and 4 against Pyongyang, capital of North Korea and focal point of its western railroads. The *Valley Forge* was then ordered south to stand by to counter possible hostilities in the Taiwan Straits. Back in the Sea of Japan on July 18, she supported the landings at Pohang. Remaining in the area for several days, she operated to the south and west of the peninsula with offensive missions against enemy troops and supply lines in support of the holding actions of American and South Korean ground forces.

The *Valley Forge* remained the only engaged carrier until the beginning of August when another Pacific Fleet attack carrier arrived. The build-up continued with two escort carriers whose ASW aircraft had been replaced by Marine squadrons and by the third Pacific Fleet attack carrier—the U.S.S. *Philippine Sea* (CV-47)—which arrived in mid-September. The first Atlantic Fleet attack carrier—the U.S.S. *Leyte* (CV-32) arrived in early October. At this point, four of the seven attack carriers in operation at the beginning of the war were committed to Korean operations; the fifth and sixth were in the Mediterranean, and the seventh was operating in the Caribbean.

In the meantime, reinforcements were arriving from the United States, and an amphibious force was organized to land at Inchon, behind the front and half-way up the west coast. After delivering a capacity load of ammunition, 145 F-51's for the U.S. Air Force, and a number of radar vans, jeeps, and other material, from Alameda, Calif., to Yokosuka, Japan, the U.S.S. *Boxer* (CV-21) returned to Alameda for reloading and rejoined the forces in the Western Pacific just in time to participate in the landing. Under cover of naval gunfire and sea-based aircraft from three attack carriers and two escort carriers, the landing force went ashore at Inchon on September 15 and pressed inland toward Seoul.

The fighting during this period, ranging as it did from the retreat to Pusan to the Inchon invasion, comprehended a number of interesting characteristics. The final North Korean drive to the Pusan perimeter resulted in the withdrawal of all Air Force fighter bombers to Japanese bases, and this reduced the payloads and loiter time available for close support. Carrier-based aircraft thereafter provided a substantial advantage in sortie rates, weapons, and time on station, but it proved difficult to exploit this. Even relatively modest numbers of aircraft tended to saturate the existing air control system (although targets were not lacking). Action reports of the period contain frequent complaints of the inability of the control system to absorb profitably naval close support missions.

Following the Inchon landings our forces moved rapidly toward the Yalu River. Victory appeared imminent, so the *Bower* was permitted to return to the United States for her delayed overhaul. The *Valley Forge* was also ordered home on November 21.

Chinese Communist forces from Manchuria attacked en masse on November 26. In addition to throwing back the Eighth Army in the west, they succeeded in cutting off the X Corps near the Chosin Reservoir. At this point, with land-based tactical air being pushed off advanced bases, the situation was critical; with only the *Leyte* and the *Philippine Sea* on the line, reinforcement was urgently required. The U.S.S. *Princeton* (CV-37), freshly out of mothballs and already on the way, arrived on December 2. A fourth attack carrier having just arrived in San Diego on December 1 embarked the *Bower* air group and returned to action on December 22 in time to cover the last days of the evacuation. Marine Corps squadrons ashore, now without airfields, were used to fill empty deck spaces on three carriers offshore (two escort carriers and one light carrier) and continued their support missions. For 16 successive days, the surrounded X Corps received on the order of 220 close support sorties a day with a record peak of 315 on 1 day at the height of the breakout. Each carrier-based sortie remained on station from 1 to 1.5 hours and made between five and nine attack passes. Over three-quarters of these sorties were provided by carriers, and it is unlikely that the X Corps would have broken out to the coast without them. As a result of the severe losses inflicted on the Chinese by the X Corps and tactical air, the subsequent evacuation of over 100,000 troops and their full equipment was accomplished with negligible loss.

Carrier operations in the remaining years of the Korean war emphasized sustained interdiction of the logistic net in the eastern half of Korea. When the Chinese undertook offensive ground action there were diversions to close air support and to airfield neutralization during the periodic Chinese efforts to regain air superiority. The fact that the front line was perpendicular to the coast line gave carrier aircraft shorter radii and therefore higher payloads and sortie rates for many interdiction and airfield targets. Throughout 1952 and 1953, about half of the Pacific Fleet carriers were maintained in Korean waters.

Of the 11 attack carriers which ultimately saw action in Korea, only four were in active status at the start of the war. The carrier force level rose during the 3 years of war from seven at the beginning to 18 at the end by reactivating ships from the Reserve Fleet inventory which had been created as a result of World War II.

The Korean armistice went into effect in July 1953. Soon thereafter, the Communist effort was stepped up in Southeast Asia. In response, the Navy shifted the bulk of its western Pacific carrier forces to the south. During the desperate battle of Dien Bien Phu in May 1954, two attack carriers were standing by to intervene on behalf of the entrapped French and Vietnamese forces had a decision been made to do so.

The next major employment of attack carriers occurred in 1955, north of the Taiwan Straits. The Chinese Communists assaulted and seized one of the Tachen Islands. Of the nine attack carriers in the Pacific Fleet, five were quickly assembled off the Tachens to cover another amphibious evacuation. The commitment of this major naval force unmistakably indicated U.S. willingness to intervene, and the 1,800 sorties flown in a week also clearly demonstrated a capability to intervene effectively without recourse to nuclear weapons. The overall posture of the carrier force at this time was as follows:

In commission.....	16
Overseas	7
Coastal waters.....	7
Overhaul	2

Active intervention in the Taiwan area was again necessary in 1958. The incident also involved coastal islands and was accompanied by renewed activity in the Straits, a buildup of forces on the Chinese mainland, and repeated announcements that Formosa would be "liberated." The timing may have been influenced by the simultaneous involvement of U.S. naval forces in the Lebanon crisis in the Mediterranean. If this was an attempt by the Communists to catch U.S. naval forces off guard, it failed. In fact, an immediate move was made to improve the readiness posture in the western Pacific by sailing the U.S.S. *Lexington* (CVA-16) (when, in October 1952, CVs and CVBs were officially designated as CVs, they became in name what they had been in fact—attack aircraft carriers) from San Diego on July 17 for that purpose.

On July 15 with the situation in Lebanon rapidly approaching the crisis state, President Dwight D. Eisenhower responded affirmatively to President Camille Chamoun's appeal for intervention. At this time we had two attack carriers deployed in the Mediterranean out of a total of six in the Atlantic Fleet. Twelve hours after the President's order was issued, these two carriers supported U.S. Marine Corps landings to seize the Beirut airport. U.S. Army troops were airlifted into the Marine-held airport 4 days later, on July 19. Clearances on overflights and landing rights were required by several European, African, and Middle Eastern nations. Since these did not affect carrier operations, the Navy retained air support responsibility until September 5.

Turning back to the Pacific, the Communists began shelling the islands of Quemoy and Matsu, off the Chinese mainland, on August 23, 1958, thus preventing the logistic support of Nationalist garrisons there. When the Seventh Fleet intervened, all the ingredients of all-out war were present.

The pattern of fleet operations that developed concentrated the attack carrier task groups on an arc around Formosa with their activity designed to make the enemy fully aware of both their presence and their strength. Carrier aircraft covered surface units escorting Chinese Nationalist logistic forces in international waters en route to and from the island groups under fire. U.S. support helped to keep the islands from falling to the Communists.

On the day the shelling of Quemoy and Matsu began, we had 15 attack carriers on active duty and they were located as follows:

Eastern Mediterranean (Lebanon area)-----	1 ²
Eastern Atlantic-----	1
East coast-----	2 ²
Overhaul east coast-----	1
Total-----	6
Western Pacific (Quemoy-Matsu)-----	3
En route WestPac-----	2
West coast-----	4 ²
Total-----	9

¹ One CVA sailed 5 days later for WestPac via Suez, as her relief arrived in the Mediterranean.

² One CVA on each coast was conducting refresher training subsequent to major overhaul.

The situation again stabilized and the immediate threat of an over-water invasion subsided. Communist forces kept the issue alive, however. Unable to achieve control of Formosa Strait and the coastal water of the East China Sea, they turned with renewed effort to expand southward on the mainland. Without challenging the naval forces present, they waged war in Vietnam, in Laos, and on the borders of India. None of the countries in Southeast Asia escaped their persistent aggressiveness.

During this general period, the carrier forces had been undergoing a gradual change in character and capabilities. Four *Forrestal*-class attack carriers—the *Forrestal*, *Saratoga*, *Ranger*, and *Independence*, CVAs 59-62, respectively—joined the fleet between October 1955 and January 1959. (Two improved *Forrestal*-class carriers—the *Kitty Hawk*, and the *Constellation*, CVAs 63 and 64, were commissioned in 1961, as was the nuclear-powered USS *Enterprise* (CVAN-65). In response to announced national policy, the emphasis on nuclear delivery capabilities grew steadily. Aircraft primarily designed for nuclear strikes, such as the A-3, were introduced in quantity. Efforts were made to develop improved weapons like Bullpup despite increasing pressure to economize on conventional capabilities.

In 1960, a major short term buildup of U.S. retaliatory capability was undertaken in response to Soviet pressure on Berlin. Among other emergency measures taken was a major increase in the degree to which the carrier force was committed to a nuclear retaliatory role. Most noticeable was the deployment of an additional carrier to the Mediterranean bringing the total there to three, This carrier and one of the three carriers in the Far East were loaded with air wings which consisted almost entirely of attack aircraft. This emergency posture was maintained from mid-1960 to mid-1961, and provided for overseas deployment of six of the 15 available carriers during most of the period. The protracted commitment placed a severe strain on fleet resources.

During the spring of 1961, carriers were involved in readiness operations in the Caribbean and Western Atlantic, which did not receive public notice. This is an illustration of the discreet manner in which aircraft carriers can be employed.

A more recent crisis in which carriers participated involved Cuba. In October 1962, the late President John F. Kennedy demanded the removal of Soviet missiles clandestinely introduced into the island and took firm measures to back up his demand. The U.S.S. *Enterprise* (CVAN-65) and the U.S.S. *Independence* (CVA-62) played major roles in the Quarantine action and they, along with the *Leawington*, would have supported the landings in Cuba had the President made a decision to invade. The adaptability and flexibility of the sea-air team was demonstrated by reassigning the *Leawington*, on duty as the naval air training carrier, temporarily to attack carrier duty with an air wing embarked from a carrier in overhaul. During the quarantine, the *Enterprise* and the *Independence* were at sea for 40 and 41 consecutive days respectively without relief or in-port replenishment, and their air wings averaged 120 flights per day. Because of the possibility of Soviet moves elsewhere, for example against Turkey, the two attack carriers in the Mediterranean were maintained on station. Similar contingencies in the Pacific motivated the movement of a carrier to the Hawaiian area to reduce the time required to reinforce the three carriers already in the Western Pacific. The resulting posture is summarized below :

Active carriers.....	16
Committed to Cuban operation.....	3
Deployed overseas.....	6
Coastal waters and overhaul.....	7

There were other crises and incidents in which attack carriers played important roles.

For almost 3 years following the 1948 break between Moscow and Belgrade there was a steady military buildup in the East European satellites. This was coupled with economic, ideological, and implied military pressure. In the politically critical spring of 1951, the United States suddenly doubled its Mediterranean Fleet by having the forces scheduled to relieve arrive about 6 weeks ahead of time and by retaining the forces due to be relieved for several weeks beyond their normal tour. In November, the United States formally committed itself to provide military assistance to Yugoslavia. A month later, a cruise by Marshall Tito in the U.S.S. *Coral Sea* (CVA-43) further underscored this commitment and advertised the immediate availability of U.S. military power in the Mediterrean even though we were at the same time fighting a war in Korea.

During the Suez crises in late October 1956, the U.S.S. *Franklin D. Roosevelt* (CVA-42) covered the evacuation by ship of 1,700 U.S. citizens from Israel and Egypt. Both Mediterranean carriers were kept at a high degree of readiness during this crisis.

In April 1957, 6th Fleet units, including the U.S.S. *Forrestal* (CVA-59), were in the Eastern Mediterranean to support President Eisenhower's warning against a threatened takeover of the Government of Jordan by the Communists. This show of force was maintained for a week to emphasize U.S. determination that Jordan should remain independent.

In the summer of 1960, the U.S.S. *Wasp* (CVS-18) arrived off the Congo to help in the mass evacuation of Americans should that become necessary. She also delivered aviation gasoline to support the U.N. airlift of Congo forces.

In November 1961, at the request of Guatemala and Nicaragua, President Kennedy ordered a naval patrol of Central American waters to intercept and prevent any Communist-led invasion of those two countries from the sea. The U.S.S. *Shangri-La* (CVA-38) immediately initiated the patrol.

Pacific Fleet carriers covered the deployment of the Marines in Thailand in May 1962. This action, in response to the violation of the cease-fire in Laos, followed by major Pathet Lao successes, was designed to give a clear indication of U.S. intentions to defend Thailand, to place a precautionary impact on the situation in Laos, and to maintain positions for quick reaction in the event of a decision calling for further action.

A table of crises showing carrier force levels and inventory is given below:

CRISES INVOLVING CARRIERS

Date	Crisis	Force CVA level	CVA inventory
June 1950.....	Korea (start).....	7	27
March-December 1951.....	Yugoslavia.....	14	27
July 1953.....	Korea (end).....	18	27
February 1955.....	Tachen evacuation.....	16	16
October 1956.....	Suez.....	19	17
April-May 1957.....	Jordan.....	17	17
July-August 1958.....	Lebanon.....	15	12
August-December 1958.....	Quemoy-Matsu.....	15	12
July 1960.....	Congo.....	14	14
September 1960.....	Berlin.....	15	14
November 1960.....	Guatemala and Nicaragua.....	14	14
February-April 1961.....	Laos.....	14	17
June 1961.....	Dominican Republic.....	15	17
May 1962.....	Thailand.....	15	17
October-December 1962.....	Cuba.....	15	15
Present Strength.....		15	15

Inventory includes those CVAs capable of operating all models of CVA aircraft existing in significant numbers in the aircraft inventory. Where force level exceeds inventory, in the table above, obsolete carriers with second line aircraft were included.

It is instructive to review the actual ways in which carriers have been used since 1950 with a view to comparing doctrine with practice. Since the demise of the Japanese Fleet and the appearance of nuclear weapons, carrier force doctrine (in common with many other force doctrines) had emphasized nuclear deterrence, with reduced emphasis on supporting amphibious operations, control of the sea, and showing the flag. All of these missions have continued to engage the fleet, however. It is striking that amphibious evacuation has been encountered about as often and as importantly as amphibious assault. Perhaps it is natural that this role has been commonly overlooked. Few planners plan on disaster, and the recurrent occurrence of military and political reverses has been submerged by the generally successful results of the series of confrontations during the past decade.

The classic World War II role of the carrier—the gaining and exploiting of air superiority in a local area until forward land-based air could assume the function—has not been exercised in the recent past primarily because such a challenge was declined by the opponents. However, the potential vulnerability of airlifted forces which was inferentially demonstrated in the 1961 Laotian crisis implies that the air superiority mission of the carrier may recur with increasing importance. A new but related role has emerged since 1950 which provides cover for the arrival of airlifted troops and deploying land-based aircraft. In Lebanon, this mission was only an extension of the basic purpose of amphibious operations. But in the 1961 Laotian crisis, the potentially chaotic ground situation at the terminal airfields made troop commanders conscious of the importance of having close air support available immediately upon landing. Similarly, the proximity of the airlift route to Chinese airfields indicated the desirability of carrier-based fighter escort.

A final characteristic of the past decade and a half can also be noted. This was the tendency of crises to occur in the Taiwan Straits coincidentally with the commitment of U.S. forces elsewhere. This happened several times during the Korean war, perhaps for diversionary purposes, and the Quemoy-Matsu crisis appears to have been a test of U.S. ability to respond while major forces were committed in the Middle East.

It is interesting to note that although the carrier force is relatively slow moving in comparison with modern aircraft, carriers have been on the scene early in the development of most major crises. This appears to result from one of the

sallent characteristics of the force. Although it moves in an assault configuration, essentially ready for a maximum effort air operations, it can be moved as ostentatiously or as discreetly as desired. One thing in common about most of these crises is the manner in which carrier forces have been moved toward the trouble spots, as they were in Lebanon, Quemoy-Matsu, and Cuba, on the most tenuous strategic warning and prior to national political decisions. They have also moved in the face of substantial enemy threats as was the case both in Korea and during the Taiwan crises.

Looking back over the last 15 years, what have the attack carriers' missions been and what have their particularly useful characteristics been? The missions can be summarized as follows:

Provide air cover for amphibious landings, as in Inchon, Lebanon, and potentially in Cuba.

Provide close air support for ground forces as in Korea.

Provide U.S. military presence, as during the Dominican Republic crisis, the Tachens evacuation, the Quemoy-Matsu and Lebanon crises.

Provide air cover and ground support for amphibious evacuations as at Hungnam.

Provide air cover for deployment of troops and land-based air as in Korea, Lebanon, and, more recently, Thailand.

Prepare to conduct blockade, search and attack, as was done off Cuba, Guatemala, and Nicaragua.

Contribute to the alert strategic forces for general war.

The particularly useful characteristics of attack carriers have been that they move in an assault configuration prepared, as they were in the Inchon and Lebanon landings, the Tachens and Hungnam evacuations, and the Quemoy-Matsu crisis, to take control of the air against air opposition. As pointed out previously, they move easily to trouble spots on the basis of even tenuous strategic warnings. Lebanon, Quemoy-Matsu, Cuba, and the Dominican Republic are examples. Top level decisions to move naval forces prior to commitment have not been required because they were operating in international waters. Because they operate in international waters, permission from a foreign country has never been necessary to proceed to the scene of a crisis, whereas U.S. land-based planes en route to Lebanon and the Congo required overflight clearances, sometimes a time-consuming requirement.

The aircraft carrier is sovereign U.S. territory. The carriers have proven themselves to be initially self-sustaining and readily replenishable at sea during all of the crisis in which they have played a role. In these crisis they have not had to depend on prepositioned base facilities, supplies, etc., since overseas replenishment has been made at sea from an underway replenishment group. Carrier's launch and recovery areas have proven as extensive as international waters; for example, a show of force over the Taiwan Straits and a few days later a strike from the Yellow Sea against Pyongyang. Tactically, carriers have been able, as in the Tachens evacuation and the Quemoy-Matsu crisis, to concentrate as a single force to obtain desirable odds.

The records show that attack carrier force levels rose from a low of seven at the beginning of Korea to 18 at the end by recommissioning from the inventory created by World War II; force levels subsequently ranged from 19 in 1956, to 14 in 1960, to 15 at the present time. The average number of active carriers has been slightly more than 15.

Second, in the Far East, a maximum deployment of five carriers has been recurrent; in the Mediterranean, three have been used with additional carriers pushed forward in the Eastern Atlantic; and in the Caribbean, three have been called out.

This history, covering a decade and a half, suggests the following conclusions about attack carriers:

They have typically been on the scene when needed.

They have been directly involved in the majority of post-World War II crisis.

They have been ideally suited for the projection overseas of U.S. military power either discreetly or ostentatiously.

They have been adaptable to a wide range of missions.

Carriers have always been used advantageously by the United States; it is difficult for me to conceive of accomplishing the same results with fewer.

Summary of uses of OVA's since 1950

<i>Orists</i>	<i>OVA mission</i>
Inchon -----	Provided air cover for amphibous landings.
Inchon, Lebanon, Thailand-----	Provided air cover for deployment of land-based air and troops—in Lebanon from time of landing of troops until relieved of air support responsibility six weeks later.
Korea -----	Provided close air support for ground forces.
Yugoslavia, Tachens, Jordan, Lebanon, Congo, Quemoy - Matsu, Dominican Republic -----	Provided U.S. military presence.
Cuba, Guatemala & Nicaragua-----	Prepared to conduct blockade, search, and attack.
Hungnam, Tachens-----	Provided air cover for amphibious evacuation.
Korea -----	Interdicted logistic net and neutralized airfields.
Berlin -----	Contributed to nuclear strategic deterrent.
Suez, Cuba-----	Provided air cover for evacuation of U.S. civilians in crisis area.
Korea -----	Transported Army and Air Force equipment including planes, jeeps, vans, ammunition, etc.
Congo -----	Transported gasoline to U.N. forces.

HISTORIC NEED FOR CARRIERS

Admiral RICKOVER. The United States is essentially an island between two oceans—an island dependent on free use of the seas for transport of materials and fuels necessary for our survival.

We no longer have friendly oceans to protect us. The Atlantic and the Pacific, once our shield and our protection, are now broad highways for launching attacks against us on, above, and beneath the surface of the seas. Further, the United States, being an island, has no contiguous land masses whence we can conduct military operations to protect our national interests or from which we can obtain the fuels and materials necessary to sustain a large-scale war effort. From our island position the only way by which we can project our national power beyond range of our land bases is through the Navy. For this, other than by all out nuclear war, we must depend primarily on our attack carriers.

There are lessons to be learned from history that we should not ignore. Germany, the predominant land power during World Wars I and II, was able to use land transportation to extend her influence and support her military and industrial effort. The Germans knew full well that the Allied war effort was almost totally dependent on overseas transportation. Therefore, they built their naval forces to interdict sea lanes—just as Russia, today's predominant land power, is now doing. German submarine and air attack on Allied shipping almost succeeded in defeating her opponents in both wars.

In contrast, Japan, an island empire, depended in World War II on the seas for her survival, as does the United States today. Aircraft carriers in that war were, therefore, the heart of the Japanese Navy. The turning point in the Pacific campaign was the sinking of half

Japan's carrier fleet in the battle of Midway in 1942. The decisive factor in her defeat was the ability of American submarine and air forces to interdict the flow of oil from overseas to the home islands, thus strangling her industrial and military effort and leading to her eventual collapse.

Today, without a modern attack carrier force, the United States would not be assured free use of the seas in those areas of the world that are important to us. It is simply not practical to establish enough land air bases adequately prepared, provisioned, defended, and within range of potential areas of conflict.

NEED FOR BOTH SEA AND LAND BASED AIR

Mr. LEIGHTON. I am by no means implying that we need sea-based air alone and no land-based air. However, there are strong arguments for a significant level of sea-based air power.

If the United States wishes to retain the capability of conducting overseas military operations in conventional war, we must be able to have air superiority in the areas where we conduct these operations. If we are to have that air superiority, we must have some way of getting it there. The only way we can be sure of having it everywhere we may have to fight is to have both sea-based and land-based air.

Mr. FLOOD. You are talking amphibious?

Mr. LEIGHTON. No, sir. I mean planes flying from attack carriers. The Air Force planes and Navy tactical attack planes are essentially the same aircraft. It is a question of what portion are based on land and what portion on carriers.

Mr. FLOOD. That is not right. We went through 2 years of this question of weight of aircraft on carriers as distinguished from weight on land.

Mr. LEIGHTON. I made the statement that the attack aircraft used by the Air Force and the Navy are quite similar. What they can do is about the same. They have the same striking range.

Many of the planes used by the Air Force and Navy in Vietnam are almost identical.

Mr. FLOOD. You know what I was talking about.

Mr. LEIGHTON. Yes, sir, the TFX. A plane has to be configured specifically for carrier duty if it is to operate off a carrier. I was referring in a general sense to the similarity of range and combat capability of the Air Force and Navy tactical aircraft being used in Vietnam as exemplified by the F-4 and A-7 which are used by both Services.

TESTIMONY ON NEED FOR AIRCRAFT CARRIERS

Admiral RICKOVER. I testified to your committee about the need for aircraft carriers in May 1966. I think that testimony is responsive to the question you asked and I would be glad for completeness to provide you copies of the remarks I made then for insertion in the record of this hearing.

Mr. MAHON. Please insert it in the record.
(The information follows:)

AIRCRAFT CARRIERS

Mr. McFALL. Admiral Rickover, I would like to have your comment on this. Is there not another factor involved in deciding the answer to the question of nuclear versus conventional power for aircraft carriers? It is perhaps, somewhat similar to the argument concerning whether we use missiles or airpower? Is it possible that aircraft carriers themselves are obsolete in the nuclear missile age? Is it possible that in that case it would be better, as an interim measure, to use a cheaper conventional-powered aircraft carrier rather than buying an expensive atomic or a nuclear-powered carrier which in itself may become obsolete in short time, relatively speaking? If that were true, then you could not achieve the cost effectiveness that we have discussed.

Admiral RICKOVER. I understand your question, sir.

Mr. McFALL. I am sure you must have comments.

Admiral RICKOVER. That is a very perceptive question and I would like to comment on it, sir.

Mr. FLOOD. The answer is just as clear—

Mr. MAHON. Let him answer.

Admiral RICKOVER. The aircraft carrier started originally as a vehicle for carrying some scouting planes. That was back in the 1920's. Then it changed over to being a vehicle for sinking other naval ships by means of its torpedo and bombing planes which could outrange naval guns. Then it changed to bombing shore installations with conventional bombs. Following World War II, with the development of carrier-based bombers armed with atomic bombs, the carrier took on a strategic role. Then that changed to where long-range Air Force bombers and missiles could do the same job. That started the downgrading of the aircraft carrier.

I do not know for sure, but I believe that at one time the reason the Department of Defense was against nuclear power in surface warships was because they didn't see the need for a naval surface fleet in wars of the future. This is the only logical reason I can see why they have been so opposed to nuclear power. Perhaps they felt—and this is only my opinion—perhaps they felt that by going to nuclear power it would give the Navy a new lease on life, and they didn't want that. They may have felt that with atomic weapons alone we could solve all our international problems, in which a war would be involved, without a surface navy. Perhaps they felt that for lesser conflicts the existing fleet could handle any situation where a surface navy might be useful.

The situation has drastically changed since that time. It has changed in this sense: The aircraft carriers for the type of war we are now fighting, and which it appears we will have to fight from now on, are really floating airbases which you can move to any part of the world. They have their own repair personnel and self-contained facilities. I think that is why there has been a resurgence in the need of and in the acquiescence for aircraft carriers. The versatility of the attack carrier, capable of operating throughout the wide ocean areas of the world, has been demonstrated in actions in Southeast Asia. Many of the military capabilities of carrier employment that have appeared in these operations were apparent in the Korean conflict and earlier in World War II. They have been emphasized and refined in the continued development of these carriers.

The attack carriers can move wherever needed without preparatory base development or diplomatic negotiations. When additional tactical air support was required in Southeast Asia, additional attack carriers were quickly moved into position. If political and military developments should result in requiring tactical air support in other areas, these or other attack carriers could be immediately repositioned to those areas.

The attack carriers contain full aircraft maintenance, support, and operating facilities. Aircraft shops are fully equipped and manned to maximize the aircraft combat sortie rate. Fuel and ammunition handling facilities are specifically designed to minimize aircraft turnaround time.

Attack carriers can respond to operational demands just as quickly as they can move to the area of operations. There is no delay for construction or seizure of airbase facilities. Buildup of land-based tactical air strength in South Vietnam has been slowed by inadequacy of existing airfields and by the time required to construct new facilities. Carrier-based tactical air squadrons are ready for full operational employment as soon as the attack carriers are ordered to the area. Protection of attack carriers is accomplished by deployment of adequate naval forces and by maneuvering these forces to achieve an optimum defensive posture. To insure this in the future we must build the best possible carrier escorts.

You have seen in the newspapers many times how land-based air operations in

Vietnam have been hampered by attacks on the airfields, even after strong land forces have taken up defensive positions around the airfields. Further, operational planning and carrier airstrike control are carried out within the carrier force without surveillance or interference by unfriendly forces. Press reports have repeatedly noted examples of land-based air operations which produced disappointing results, apparently because the Vietcong obtained advance notice of the operations.

The combat air operations in Vietnam, conducted by joint employment of Army, Marine, Navy, and Air Force aircraft, are providing valuable side-by-side comparisons of the capabilities of land-based and sea-based tactical air units. Problems encountered, general successes achieved, and major losses suffered have been widely reported in the press.

Prior to the decision by the United States to engage in a large military effort in South Vietnam, tactical air power in Southeast Asia included Air Force aircraft based in the Philippines and other Air Force bases, Marine aircraft in the Far East, and the aircraft of three 7th Fleet attack carriers. With the increase in military operations in the summer of 1964, tactical aircraft moved into bases in South Vietnam, and 7th Fleet attack carriers took up stations in the South China Sea.

The influx of tactical aircraft quickly saturated the available airfields in South Vietnam, and overwhelmed the available aircraft maintenance and support facilities. Time delays for refueling, for rearming, and for completing routine maintenance placed unproductive operational restrictions on tactical aircraft employment. The aircraft which could be moved into these fields, limited in numbers by the size and number of fields, were operationally limited by these inadequate support features. The 7th Fleet attack carriers were fully operational and from the beginning of this increase in military operations have provided a major portion of tactical air requirements in this area.

The available airfields, packed as they were with aircraft, provided lucrative targets for Vietcong attacks. A mortar attack by the Vietcong on B-57's at Bien Hoa Air Base in October 1964, and a similar attack on the airfield at Pleiku gave early notice of the effectiveness of such destructive attacks in a country not completely under friendly control.

At about the same time, you will remember that attempted attacks by naval patrol craft of North Vietnam against U.S. destroyers in the Tonkin Gulf were unsuccessful. Carrier-based aircraft of the 7th Fleet promptly conducted damaging air strikes against North Vietnamese patrol craft at their bases. Of course, no attacks against carrier units have yet been attempted.

By mid-1965 Marines were established along the northern coast of South Vietnam to provide maximum possible security for Da Nang airfield and other facilities being constructed nearby. The increased requirements for tactical air support generated by these and other U.S. Forces ashore in South Vietnam, were in excess of capabilities of the saturated airfields. Additional numbers of attack carriers were quickly ordered to supporting positions. Five of the Navy's 15 attack carriers are now on station in the Western Pacific, two operating at "Yankee" station off North Vietnam, one at "Dixie" station off South Vietnam, and two more in the Western Pacific to provide additional tactical air support as needed.

A Vietcong attack on Da Nang last year which resulted in losses to parked aircraft has shown that the defensive forces still did not guarantee complete security of this airfield. In contrast, aircraft on board the attack carriers are not vulnerable to such loss by infiltrators, and naval escort and patrol units have thus far acted as an effective deterrent against North Vietnamese seaborne attack.

Logistic support of the airfields has obviously become a major effort. In addition to construction of proper operating surfaces, requirements exist for construction and support of maintenance facilities, fuel storage and handling facilities, personnel quarters, and for defensive installations. Aircraft operations require large quantities of fuel, ammunition, spare parts, et cetera. For either land-based or sea-based air forces this logistic support must be delivered by available commercial and military sea lift. But for land-based air logistic support all supplies must also be offloaded in crowded South Vietnamese ports, and then transported overland to the airfields for storage and use. The forces ashore to defend the airfields also require complete logistic support.

Reports in the press have stated that construction work contracted or programmed in South Vietnam by the Defense Department with civilian construction contractors amounts to more than \$500 million. This work is principally for airbases, port and storage facilities, and interconnecting roads. Construction by military units, such as the Navy's Construction Battalions, are in addition to this

figure. Runways and other aircraft operating facilities are under construction at Da Nang, Chu Lai, Qui Nhon, Cam Ranh, and Bien Hoa. Extensive port facilities are being hurriedly constructed to overcome the immense logistic logjam which has built up at the port of Saigon. A completely new deep-water port has had to be constructed at Cam Ranh Bay. Other piers and unloading and storage facilities are being erected at Da Nang and at Chu Lai.

Support of the naval units in the Western Pacific, while necessarily representing a significant increase over normal levels, is conducted by repositioning available naval logistic ships. The value of the investment in these ships, is, of course, that they can be used wherever they are needed throughout the world any time during their useful life of about 30 years, as can the carriers and their escorts.

Thus far, our sealift supply lines to South Vietnam have not been attacked. If they are attacked in the future, any weaknesses we may have in the protection of our sealift supply lines will affect both land and naval operations. The overall logistic supply lines for land operations are actually more vulnerable than for sea-based operations because supplies for land operations must be carried all the way into South Vietnam and then are subject to attack in the restricted port area and during overland transport. The rendezvous location for transfer of supplies to naval ships can be chosen so as to minimize the vulnerability of attack of the logistic ships. It is, of course, the vulnerability of logistic supply lines that nuclear propulsion does so much to reduce.

The ability to provide tactical air support from airfields is limited by the rate at which airfields and support facilities can be constructed, supported, and defended once base rights have been obtained. The investment in these facilities is, of course, only of value within the aircraft range of the base and for the period of time the base rights are retained, while the carriers can be moved on to the next crisis area.

The amount of carrier-based tactical air support which can be moved into the southeast Asian theater of operations is limited only by the number of attack carriers in commission and by the military commitments of the United States which require attack carrier deployment to other areas of the world. Attack carriers represent effective, combat-ready forces which can be deployed anywhere to meet changing requirements for tactical air operations. The ability of attack carriers to provide needed tactical air support quickly and effectively has been repeatedly demonstrated in these operations in southeast Asia. The present carrier dispositions, with three attack carriers in assigned operating areas off North and South Vietnam and two attack carriers moving where needed for tactical air support, is an example of the flexibility which can be attained through carrier employment. Should forces ashore require additional support, the 7th Fleet attack carrier forces could be augmented quickly.

I believe I have answered your question, sir.

Mr. FLOOD. There is more to it than that.

Mr. MAHON. Let Mr. McFALL finish.

Mr. FLOOD. I will desist until he does.

Mr. McFALL. Thank you, Admiral Rickover. I think you have answered the point I raised. May I say that my reason for asking it was this: If you are going to prepare a case based on cost effectiveness and you are going to have your expert witnesses prepare their arguments for a nuclear carrier on that basis, then the opponents of a nuclear carrier can come in with their experts and say, "This is not really the important part of the decision. We can add all this up and we will agree with you that this is the answer, but the overall military strategy has made aircraft carriers obsolete. Therefore, your figures mean nothing." That is why I asked the question, Admiral; to clear up that point.

Admiral RICKOVER. But the actual situation is that the Department of Defense is now recommending more carriers in view of the new type of war and they have recommended nuclear power in the new carriers that are to be built, sir.

Mr. FLOOD. That is the point I was going to make. This is moot. They have decided to have the carrier. The question is what kind.

Admiral RICKOVER. They decided to have nuclear carriers. They now have a force level of 15 attack carriers. But not much more than a year ago, before the Vietnam situation took a turn for the worse, the Department of Defense was talking about reducing the force level to 13 carriers, possibly even less.

As I told this committee 2 years ago, I could understand the desire not to build nuclear carriers if you had made a decision not to build new warships for the Navy. But I added another proviso. I said if it is the real desire of the Department of Defense to do away with the surface Navy, that is an issue that

should be faced and discussed openly and fully with Congress. Such a decision—to do away with one of our major military arms—is a vital one for the defense of the United States. That question is certainly a larger issue than nuclear power and should only be decided after full debate.

Mr. McFALL. When you make the decision that there must be more carriers, then you must face the question of the overall role of the Navy which you have pointed out.

VULNERABILITY OF AIRCRAFT CARRIERS

Mr. MAHON. The Hatfield Report expresses concern that aircraft carriers would be easy targets for enemy submarine, aircraft, or missile attack. What do you have to say concerning the vulnerability of aircraft carriers?

Mr. LEIGHTON. Sir, there is no such thing as a weapon that can't be attacked by a counter weapon. An aircraft carrier can be sunk—although not easily—just as any land base can be subjected to major damage.

Aircraft carriers are, of course, subject to enemy submarine and air attack. Because of this, and when the threat warrants, the Navy must assign tactical aircraft for air defense, as well as warships to provide anti-aircraft and antisubmarine protection. Although the inherent mobility of the carrier makes it a difficult target for an enemy to find and attack, and defensive aircraft and escort ships are provided, carriers themselves are designed to absorb damage from enemy action with minimum disruption to their operational capability. Carriers are extremely tough ships.

No attack carrier built during World War II or subsequently has been lost to enemy action or from any other cause. The *Essex* class, many of which are still in service, fought through the air and kamikaze attacks of World War II. The newer attack carriers have had more extensive protection features, such as armor flight decks and improved torpedo side protection systems incorporated in their design as the result of World War II experience and lessons learned since.

The recent accidental fire and explosions aboard the *Enterprise* demonstrate the toughness of the modern carrier. The flight deck was subjected to a number of major explosions. Yet, the *Enterprise* could have resumed air operations within hours—as soon as the debris was cleared from the after end of the flight deck.

In the *Oriskany*, *Forrestal*, and *Enterprise* fires, 39 aircraft were destroyed and 65 damaged. The causes of these fires have been extensively examined and additional design and safety precautions incorporated; these are expected to reduce the likelihood of this type accident in future.

But when you think of the vulnerability of the carrier, please remember that land bases are subject to air and ground attack. The Air Force, like the Navy, has to invest in tactical aircraft for air defense. Further, despite the precautions taken in Southeast Asian air bases, 300 aircraft have been lost and 3,000 damaged while on the ground at U.S. airbases since start of the Vietnam war. During the Korean war virtually all the tactical airbases in South Korea were overrun by enemy ground forces, some were captured a second time by the Chinese Communist forces. I am not criticizing land bases, but we need to recognize they are vulnerable to people throwing hand grenades, mortar attack, and so forth.

Every weapon is vulnerable because once a weapon is developed, your potential enemies start work developing counters to it. The fact

that carriers and land airbases can be damaged by enemy attacks does not reduce the need for tactical air power—both land based and sea based. Without tactical air power our amphibious forces, our ground troops, and our logistic supply lines would be unacceptably vulnerable.

The basic question is whether the United States is going to provide tactical aircraft coverage for our fighting men and our logistic supply lines. As long as we are faced with commitments that involve getting material and men across the water and being able to fight when they get there, we have the problem of providing tactical aircraft coverage enroute and at the other end when they arrive. We can provide that tactical aircraft coverage from aircraft carriers which are mobile platforms, or from land bases if they are in the right places and ready to use before the contingency arises.

The attack carrier can be sunk, but it is not easy to do this with conventional weapons. With nuclear weapons it is easier; but with nuclear weapons just about anything can be destroyed.

The *Nimitz* class attack carriers are designed to be as invulnerable as modern technology can make them, taking into account the weapons we can expect may be used against them.

The Chief of Naval Operations has prepared a statement on the subject of carrier survivability. I would be glad to provide a copy for insertion in the record of this hearing.

Mr. MAHON. Please provide it for the record.

(The information follows:)

CARRIER SURVIVABILITY

Modern attack aircraft carriers with their embarked aircraft represent the most powerful warships ever built. They are essentially offensive weapon systems designed to conduct strike operations against an enemy in a combat environment. Although the inherent mobility of the carrier makes it a difficult target for an enemy to find and attack, carriers are nevertheless designed to absorb damage from enemy action with minimum disruption to their operational capability.

Any examination of carrier vulnerability must consider the subject under the total range of warfare situations in which the attack carrier, or tactical air power, may be employed. A particular feature of the carrier weapons system is its operational flexibility which permits it to be effectively employed across the full spectrum of warfare, from show of military force, through limited wars, to general conflict with conventional weapons, and the ultimate nuclear war.

Within this range of warfare situations, the greatest probability of conflict lies below the general war threshold. There have been 50 wars or near wars since the end of World War II. Yet no carrier has suffered loss or damage from hostile action during this period, in spite of the fact that all but two of the carriers in our current CVA inventory have been involved in actual combat operations since World War II. In contrast, virtually all of the tactical air bases in South Korea were overrun by enemy ground forces in the Korean war, and over 300 aircraft have been destroyed on airfields in South Vietnam, and over 3,000 more damaged by enemy attacks.

This relative invulnerability to enemy attack in the limited wars since World War II has been due to the inherent mobility of naval forces which permits the carrier to operate beyond the effective range of weapons available to satellite forces. It is not foreseen that this situation will drastically be altered in the future, at least not until the bloc satellites have acquired high-performance delivery vehicles such as modern submarines and jet bombers, and developed a significant operational capability in their use. A recent analysis, for example, shows that carriers could continue to operate in the Gulf of Tonkin and still remain outside of the range of Soviet Styx surface-to-surface guided missiles emplaced at launching sites in North Vietnam. It is an important related fact, that no potential North Vietnamese missile-launching platform, aircraft, or PT

boat, has penetrated the TF-77 defense to within attack range of the carriers.

The greatest threat to U.S. carriers both now and in the future is posed by Soviet air and submarine forces under general war conditions. Additionally, the Chinese Communist air and submarine forces will present an increasing threat in the future as they develop improved delivery vehicles and nuclear weapons.

Although the probability of general war in the future is small in comparison to the possibility of limited conflicts, the consequences of a general war and the threat to our national security are so great that the material, tactics, and operational concepts of the U.S. Navy should be based upon this maximum threat. A useful and significant consideration in connection with this principle is that naval forces which are capable of coping with this maximum threat are obviously more effective and less vulnerable in less intense warfare situations.

An analysis of the vulnerability of carriers in general war must be divided into two parts, the conventional war case, and the nuclear war case, because of the vast differences in weapons effects.

First, the nuclear case. In defending against a nuclear weapon attack it is necessary to effect a 100-percent-kill defense, because of the devastating effects that may result from a single nuclear detonation in the vicinity of the force. This is admittedly not an easy task for a ship at sea. However, it must be recognized that the attacker is also faced with a formidable problem. Most importantly, the mobility of the ship target offers considerable protection, which increases with the range of the weapon considered. Against ICBM attack, the aircraft carrier, in contrast to cities, industrial complexes, land airbases, ports, missile sites, and similar fixed targets, is virtually immune. It cannot be pre-targeted. It can move 12 miles or more during the time of flight of an ICBM. If its position is precisely known at a given time, 3 hours later the carrier is somewhere in the area of a circle of more than 25,000 square miles.

Even when using surface- or air-launched guided missiles with nuclear warheads, the enemy has a most difficult task of targeting. First, the naval task force must be located, then the individual ships identified to determine which is the carrier. This information requires constant updating as the surface contact picture changes with task force maneuvers, and the attacker must know during the missile launch phase which of the many surface contacts is the carrier. A modern task force under the tactical or strategic warning conditions which would attend impending or existing hostility, could operate in an electronically silent, full alert condition, which would add to the attacker's targeting problems.

No less important than the naval task force's inherent mobility is its active capability for self-defense in depth. Guided missiles are considered to be the greatest threat to surface ships. The initial defense against long-range guided missiles is the detection and destruction of the delivery vehicles. Far-ranging nuclear-powered attack submarines can detect and attack enemy submarines to destroy potential missile launchers. Airborne early warning aircraft are maintained on station to detect enemy reconnaissance and missile-carrying planes, as well as surface warships, and direct combat air patrol fighters to intercept and destroy the intruders, air or surface. One objective is to shoot down the reconnaissance aircraft for a long-range missile attack, and to destroy the missile carriers before they reach their missile release point.

Should the missile, aircraft, surface ship, or submarines evade or saturate this initial defense perimeter, and successfully launch their missiles, then the guided missiles themselves become the primary target in the next defensive phase. These missiles are not dissimilar in general size and performance to aircraft, and are therefore vulnerable to the task forces antiaircraft defenses. To reach the carrier, the enemy antiship missiles must evade additional fighter forces, and then successfully penetrate the surface-to-air missile defenses of the screening guided missile frigates and cruisers in the task force disposition. Finally, surviving enemy missiles are exposed to the highly effective fire of short range, point defense missiles, and to gunfire from ships of the task force.

To complicate the enemy's guidance problems, even if the missiles are able to escape being destroyed by the layers of defense in depth, ships in the carrier task force are equipped with electronic warfare equipment which mask the identity of the ships, jam the guidance devices in the missiles, and confuse their homing systems.

In view of the defensive advantages of a naval task force in comparison with a fixed installation, it would appear to be an unlikely and irrational choice for the enemy to initiate an all out nuclear war by making the first attack on our carriers.

In the nonnuclear case, long-range guided missiles again appear to constitute the greatest threat to the task force. However, the effectiveness of conventional warhead-equipped missiles against our ships in such an attack is much less than the nuclear case by several orders of magnitude. Not only must these missiles penetrate the same layers of defense in depth, but they must achieve a direct hit on the target. A near miss, highly effective in the case of a nuclear weapon, has no significant damage effect in the case of conventional warheads.

If our carriers do sustain hits from conventional bombs, torpedoes, or missiles, some damage will occur, but that does not mean that the ship will be put out of action. Modern carriers are extremely tough ships. No attack carrier built during World War II or subsequent has ever been lost to enemy action. The *Essex* class fought through the air attacks and kamikazes of World War II. Subsequent carrier designs have had incorporated even more extensive protective features, such as armored flight decks and improved side protection. The hardness of the modern attack carrier is illustrated by the recent experience of the *Enterprise*, when nine major caliber bombs detonated on her flight deck. Yet the ship could have resumed her scheduled air operations within hours, as soon as the debris was cleared from the after end of the flight deck.

In summary, vulnerability of any weapon system is not an absolute quality. Carriers are not completely vulnerable to any weapon any more than they are completely invulnerable. However, because of their mobility, their design, and the defense in depth of the carrier task force, the carrier is less vulnerable, across the spectrum of warfare, than any fixed base tactical air system.

CARRIER BATTLE DAMAGE

Mr. LEIGHTON. Some years ago the weapons systems evaluation group in the Office of the Secretary of Defense prepared a report on "Operational Experience of Fast Carrier Task Forces in World War II" which contained a summary of carrier battle damage including the cause and effect of the damage. This summary shows that of the 20 carriers damaged in our fast carrier task forces during World War II, only the *Yorktown* was sunk directly by enemy forces. The *Leaington*, *Wasp*, and *Princeton* were sunk by our own forces following serious fires and explosions resulting from enemy action. The *Hornet* was abandoned after a day long action during which she was hit by five bombs, three aircraft torpedoes, and two kamikazes. In an attempt to sink the abandoned ship, our own destroyers hit her with nine torpedoes and 5-inch gunfire. The floating hulk was finally sunk during the night by five Japanese torpedoes. All five of our fast carriers sunk were of pre-World War II design and all had wooden flight decks.

The conventionally powered *Enterprise*, which joined the fleet in 1938, was damaged more times than any other carrier. Over a period of 3 years, she was hit by three kamikazes and eight bombs in six different actions. On three of these occasions, she continued in operation after being hit; on another she resumed flight operations within 2 hours after being hit. Only on two occasions was she forced out of action, once for 3 weeks and once for 14 weeks.

If you would like me to, I will furnish this summary for the record. I think that when you review the World War II carrier experience in light of the improvements in carrier design made since that time, you will recognize that the modern carrier is a very tough ship. The *Nimitz* class will be the best protected and least vulnerable carriers ever designed. The added protection is provided by extensive use of armor against bombs and guided missiles, as well as by improved antitorpedo hull design. The unlimited endurance at high speed and freedom from the need to slow down to refuel provided by nuclear propulsion further reduce vulnerability.

Mr. MAHON. Please furnish the summary for the record.

(The information follows:)

SUMMARY OF BATTLE DAMAGE TO U.S. CARRIERS, WORLD WAR II, INCLUDING CAUSE AND EFFECT OF DAMAGE

Ship	Date hit	Cause of damage	Continued in operation	Temporarily out of action (see remarks)	Out of action	Required overhaul or repair	Duration of overhaul or repair	Sunk	Remarks
Lexington	May 8, 1942	2 bombs; 2 or 3 air torpedoes.	X		X		Sunk	X	Hit at 1120-1121. Landed 13 planes at 1145. Launched planes at 1243. Large explosion at 1442. Fires out of control at 1450. Ship abandoned and sunk by our own DD torpedoes.
Yorktown	June 4-7, 1942	3 bombs; 2 air torpedoes; 2 submarine torpedoes.	X		X		do	X	Hit at 1430. Launched 8 VF at 1600. Torpedoes hit at 1620—ship stopped—later sunk (on 7th).
Wasp	Sept. 15, 1942	2 or 3 submarine torpedoes.			X		do	X	Finally sunk by own DD torpedoes. Jap submarine torpedoes struck in way of magazines and exploded part own ammunition. Fires and damage appeared manageable until 3 gasoline vapor explosions occurred below deck.
Hornet	Oct. 26, 1942	5 bombs; 3 air torpedoes; 2 kamikazes.			X		do	X	Daylong action. Finally sunk by own DD torpedoes and gunfire after ship abandoned.
Saratoga	Jan. 11, 1942	1 submarine torpedo.	X			X	See remarks		Repaired at NYPH and then proceeded to NYPS for installation of blisters as previously scheduled—duration of overhaul 4 months, not all chargeable to torpedo damage.
Enterprise	Feb. 1, 1942	1 bomb	X						Splinter damage only.
Yorktown	May 8, 1942	3 bombs	X						Hit at 1127. Landed planes at 1155; launched at 1215; launched planes at 1230. Not sent in for overhaul or repairs.
Enterprise	Aug. 24, 1942	4 bombs	X		X	X	3 weeks		Hit at 1712—continued to operate planes until 1843 when steering lost. To NYPH.
Saratoga	Aug. 31, 1942	1 submarine torpedo		X		X	7 weeks		Hit at 1948. Stopped at 1953 as result of electrical fires. At 0130 back in commission and at 0130 landed 20 VSB and 9 VTB, at 0030 launched and landed A/C.
Enterprise	Oct. 26, 1942	2 bombs		X		X	2 weeks		Hit at 1115, started operating planes again at 1230. To Noumea for repairs.
Independence (CVL)	Nov. 20, 1943	1 air torpedo			X	X	24 weeks		3 shafts knocked out and extensive flooding.
Lexington	Dec. 4, 1943	do			X	X	8 weeks		Hit at 2330, no air operations in progress to PSNY.
Princeton (CVL)	Oct. 24, 1944	1 bomb			X		Sunk	X	Hangar deck fires. Finally sunk by own forces.
Intrepid	Feb. 17, 1944	1 air torpedo			X	X	6 days		Steering gear damaged.
Wasp	Feb. 19, 1944	5 bombs	X						Fragment damage, local fires.
Bunker Hill	June 19, 1944	1 bomb	X						Fragment damage, local fires, minor flooding.
Franklin	Oct. 13, 1944	1 kamikaze	X						Negligible damage.
Hancock	Oct. 14, 1944	1 bomb	X						Minor fragment damage.
Franklin	Oct. 15, 1944	3 bombs	X						Minor fragment damage. Small fires. Minor damage.
Intrepid	Oct. 29, 1944	1 kamikaze	X						Small fire, quickly extinguished.
Franklin	Oct. 30, 1944	do		X		X	10 weeks		Hit at 1046. Recovered planes of strikes in air at 1337. Launched again at 1649. Recovered at 1758. To PSNY. Extensive fires were extinguished in 2½ hours.

SUMMARY OF BATTLE DAMAGE TO U.S. CARRIERS, WORLD WAR II, INCLUDING CAUSE AND EFFECT OF DAMAGE—Continued

Ship	Date hit	Cause of damage	Continued in operation	Temporarily out of action (see remarks)	Out of action	Required overhaul or repair	Duration of overhaul or repair	Sunk	Remarks
Lexington	Nov. 5, 1944	1 kamikaze	X						Small fires extinguished in 20 minutes.
Essex	Nov. 25, 1944	do	X						Minor fires, minor flight deck damage. Hit at 1256, resumed flight operations at 1326 (30 mins.)
Intrepid	do	2 kamikazes			X	X	7 weeks		Extensive fires and structural damage. Hit at 1254/59. Flight deck fires out at 1314; others under control at 1532. To NYSF.
Belleau Wood (CVL)	Oct. 30, 1944	1 kamikaze			X	X	4½ weeks		Serious fires on flight deck, gallery, and OI decks. To NYSF.
Cabot (CVL)	Nov. 25, 1944	2 kamikaze		X			2 weeks		Small fires. Minor structural damage. Severe fragment damage. To Ulithi for repairs. Operated planes 1 hr., 06 mins. after hit.
Ticonderoga	Jan. 21, 1945	do			X	X	9 weeks		Extensive fires and damage to electrical cables under flight deck forward. To NYPS.
Saratoga	Feb. 21, 1945	4 kamikazes; 2 bombs		X		X	10 weeks		Hits over period from 1700 to 1845. Extensive fires and severe structural damage. By 2015 ready to land A/C. To PSNY.
Randolph	Mar. 11, 1945	1 kamikazes				X	3 days		Ship at anchor Ulithi when hit. Repaired at Ulithi.
Enterprise	Mar. 18, 1945	1 bomb	X			X	12 days		Minor fires, minor damage. No interruption of operations (bomb broke up). Repaired at Ulithi.
Intrepid	do	1 kamikaze	X			X	11 days		Minor gasoline fires, minor fragment damage. Repaired at Ulithi.
Yorktown	do	1 bomb	X			X			Severe blast and fragment damage to exterior shell plating. Minor fires quickly extinguished. No interruption of operations.
Franklin	Mar. 19, 1945	2 bombs			X	X	End of war		Terrific conflagrations and explosions of own bombs, ammunition and Tiny Tims.
Wasp	do	1 bomb		X		X	7 weeks		Severe fires. Moderate structural damage. Resumed routine flight operations day after hit. Withdrawn following day and ordered NY.
Hancock	Apr. 7, 1945	1 kamikaze		X		X	7 weeks		Severe fires. Hit at 1210, landed returning strike at 1630. Withdrawn and ordered to Pearl Harbor for repair.
Enterprise	Apr. 11, 1945	2 kamikazes		X		X	4 weeks		Minor fires, hull damage, and flooding. Heavy shock damage to machinery. Hits at 1410 and 1510. Launched planes at 1652.
Essex	do	1 bomb	X						Minor damage. Hit 1507. Launched at 1541, landed CAP at 1604
Intrepid	Apr. 16, 1945	1 kamikaze		X		X	5 weeks		Severe conflagration, moderate blast and fragment damage
Bunker Hill	May 11, 1945	2 kamikazes			X	X	16 weeks		Hit at 1336, fires out at 1544, and reported ready to land planes. Repair at Hunters Point.
Enterprise	do	1 kamikaze			X	X	14 weeks		Severe fires, moderate structural damage. Out of action. To NYPS.
Langley (CVL)	Jan. 21, 1945	1 bomb		X		X	9 days		Fires controlled in 30 mins., but bulging of flight deck required sending planes to other ships. To PSNY.
San Jacinto (CVL)	Apr. 6, 1945	1 kamikaze	X						Moderate blast and fragment damage. Minor fires. Hit at 1207 recovered planes at 1435 and fleet operations continued thereafter.
									Minor damage.

SECOND NIMITZ CLASS CARRIER

Mr. MAHON. When we are trying to reduce the Federal budget, why should we go ahead with building the second *Nimitz* class nuclear carrier in the fiscal year 1970 shipbuilding program?

Admiral RICKOVER. Let me answer your question on the same philosophical basis I recently expressed to the Joint Committee on Atomic Energy when Chairman Hollifield asked a similar question.

Freedom can only be retained in this world through vigilance. Freedom comes only at a price. If we allow our military strength to erode, we may wake up one day and find that our freedom to improve the lot of our poor and disadvantaged has been lost because we are not willing to pay the price of vigilance. The early frontiersman had to carry his rifle over his shoulder as he plowed his field. No less today, we must remain prepared at any time to defend our way of life, even our very existence as a nation. Our most senior defense officials and the President, also faced with the tight budget situation, have concluded that this aircraft carrier is needed this year in order to provide adequate defense capability.

The war in Vietnam has again emphasized one of the most important lessons in history—the need to be able to use the seas in time of conflict. In spite of the publicity given to airlifting troops and supplies to Southeast Asia, over 98 percent of the material and supplies for our forces in Southeast Asia go by sea. This war, from the naval standpoint, is like a War College exercise. Except for our Navy pilots and some other naval personnel involved in river warfare, our naval presence in Southeast Asia has not been challenged. No plane has attacked our ships, no submarine has fired a torpedo at them.

If we were in a conflict involving the naval and air forces of the Soviet Union or the Communist Chinese, it would be up to our naval aircraft carrier forces to protect our overseas supply lines as well as carry the fight to the enemy. Land-based aircraft would help for actions within range of protected airbases. The Navy needs the *Nimitz* class carriers in order to have the capability of countering the expected Soviet air threat of the mid 1970's.

The Soviet Union is embarked on a program which reveals a singular awareness of the importance of seapower and an unmistakable resolve to become the most powerful maritime force in the world. They demonstrate a thorough understanding of the basic elements of seapower: knowledge of the seas, a strong modern merchant marine, and a powerful new navy. They are surging forward with a naval and maritime program that is a technological marvel.

The Soviet Navy has undergone a continuing modernization program including the building of missile-armed cruisers and destroyers, helicopter carriers and several new classes of nuclear and conventional submarines. As a result, the Soviet Navy has become a fleet capable of sustained open ocean operations. For the first time in its history, the Soviet Union is using a deployed naval force in support of foreign policy in areas not contiguous to its borders. Their force in the Mediterranean includes warships armed with surface-to-surface and surface-to-air missiles, amphibious ships with naval infantry embarked, as well as torpedo attack and sometimes missile-armed submarines.

The Soviet submarine force constitutes a threat against the conti-

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mental United States, U.S. Naval forces, and our unrestricted use of the seas. Several classes of Soviet submarines, both conventional and nuclear powered, carry cruise missiles which have a maximum range of about 400 miles. It is believed that the primary mission of these submarines is to counter U.S. carrier strike forces. As I discussed at length earlier, the Soviets have a new submarine force of about 375; the United States has 145, which includes 61 diesel submarines, most of which are World War II vintage.

Soviet tactical air efforts have resulted in significant gains in their capability. It must be noted that Soviet progress in tactical aviation has application to threats worldwide, since the Russians export their first line aircraft to other countries on a selective basis. Between 1952 and 1967, the Soviets have built about 20 different fighter prototype aircraft. At least eight different designs have appeared since 1961. Since the F-4 Phantom II became operational in 1961, the United States has not introduced any new operational fighter aircraft. The Air Force is still working on the YF-12; the F-111A, although operational, is not really a fighter aircraft.

I know that nuclear carriers are expensive; all modern arms are. This is one of the sacrifices we must be prepared to pay to stay free in the world as it is.

I, too, wish the world were different and it were not necessary to spend young lives and scarce natural resources for defense, but we must survive in the world the way it is, not delude ourselves by trying to live in a dream world we wish existed. The effort truly to perceive the danger is no simple task, given the forces of obfuscation. Not the least of these is vincible ignorance—that which we don't know because we don't want to know it.

Mr. LEIGHTON. If the second *Nimitz* class carrier is to be built at all, the funds must be appropriated in fiscal year 1970. As I said earlier, machinery for this ship is already well along in fabrication, and the ship is scheduled to follow the *Nimitz* which is well along in construction. If you break the sequence—the ship and its equipment in series production—you will put a gap in the production sequence which will require you to pay a lot more for the ship later on.

Admiral RICKOVER. I would like to interrupt here, sir. To go ahead with the second *Nimitz* class carrier you do not have to, at this time, decide the ultimate number of carriers we should have. Since many of the present aircraft carriers are becoming obsolete and we need the capabilities of the new ones in the fleet, you will save a great deal of money by permitting the second and third *Nimitz* class carriers to go in sequence with the *Nimitz*. It will cost a great deal more money from inflation, interrupted production lines, and delay in delivery if you do not do it, sir.

How many total attack carriers we should have is not the real issue in regard to building the three ships of the *Nimitz* class. You can adjust the overall force level as necessary by retiring World War II ships. Don't forget, we are talking about new ships to be completed in the mid 70's when the World War II ships will be 30 years old. You will certainly want at least three of these nuclear carriers in addition to the *Enterprise* in the fleet of the mid 1970's. This is why it is important that we go ahead with the second *Nimitz* class carrier and order long lead items for the third in fiscal year 1970.

Stretching out their construction can only increase their ultimate cost and delay their delivery.

The way I envision the surface fleet of the future, if you care to hear my concept on that —

Mr. MAHON. I think it would be interesting.

SURFACE NAVAL FORCES OF THE FUTURE

Admiral RICKOVER. I see the surface naval force of the future as composed of nuclear powered aircraft carriers defended by nuclear powered frigates. This will give us mobile striking forces capable of being sent anywhere in the world without the prior establishment of logistic support.

This will be particularly necessary, because I see us approaching a "fortress America" concept where we will have few foreign bases, if any. Neither the American people nor the people in the host countries favor our foreign bases in many cases. As time goes on, we will find foreign bases harder to acquire.

If we are to have a striking force, it should, insofar as possible, be able to operate independently. Therefore, we will have to build these new nuclear-powered aircraft carriers.

From a standpoint of actually saving money it is best to go on now, with these three *Nimitz* class carriers that have been approved by the Department of Defense. Once you delay them, there will be considerable additional cost.

The Navy has planned that by 1980 the nuclear carriers and their nuclear escorts will constitute a major striking force of the U.S. Navy. That will be what you could call our battle force. It will be the most powerful group of ships that has ever been assembled. It will be a force that can be sent anywhere in the world on short notice and in a short time. And in view of the limitations there may be on our having advanced bases overseas, and our relations with other countries, this may be a very, very important thing at that time. The existence of such a force will free us from much logistic support, and will enable us to operate swiftly and surely without dependence on foreign agreements or foreign bases.

NUCLEAR PROPULSION PLANT COMPONENTS

Mr. MAHON. The fiscal year 1970 budget request includes \$48 million for spare *Nimitz* class nuclear propulsion plant components. Would you please explain why it is necessary to buy these spares at this time?

Mr. LEIGHTON. The nuclear propulsion plant components for the *Nimitz* class two-reactor aircraft carriers are the largest and most complex equipment ever manufactured for the naval nuclear propulsion program. It has been necessary to establish separate manufacturing facilities for many of the components just to build this equipment. The manufacturing leadtime for most of this equipment is a year longer than the next most limiting equipment needed for construction of a nuclear aircraft carrier.

Spare components are needed to back up construction and operation of all modern complex weapons. Due to the long leadtime needed for manufacturing these large nuclear propulsion plant components, it is

particularly necessary that spare components be in the process of manufacture should there be damage to or loss of one of these components during construction of the three *Nimitz* class carriers. It could take years to build a new component from scratch; ship construction could be delayed in the process and costs increased due to the delay. We have programed the authorization of the *Nimitz* class nuclear propulsion plant spare components over a 3-year period starting with the \$39.3 million appropriated last year. We need the second increment of \$48 million this year and we will need about \$21 million next year. Further, since a third *Nimitz* class carrier is planned in fiscal year 1971, it is unwise to allow the special production lines to be shut down in fiscal year 1970 and let their capacity be transferred to the expanding civilian reactor business.

Admiral RICKOVER. It is worth noting, Mr. Chairman, that the shipbuilding bill introduced by Chairman Rivers, H.R. 574, includes funds not only for the *Nimitz* class nuclear propulsion plant spares but also long leadtime funds for the fiscal year 1971 carrier, the CVAN-70. I recommend that these aspects of Mr. Rivers' bill be approved by Congress so that these carriers can be built at minimum cost and without delay.

NUCLEAR FRIGATES

Mr. MAHON. Would you please give us your views on nuclear frigate construction during the next several years and what the Navy plans are in this regard?

Mr. LEIGHTON. Additional frigates with guided missile anti-air warfare systems and antisubmarine capability are required to provide adequate air and submarine defense for the fleet.

For both independent duty and task group operations, nuclear power in frigates gives the capability of steaming great distances at high-sustained speeds. It permits the commander to position the ships with much more flexibility, since they are not dependent on oiler support. It also gives him more flexibility in his choice of actions because here again he does not have to concern himself with the problem of sooner or later having to join up with an oiler.

The overall capabilities of a nuclear carrier task force are improved each time a nuclear-powered, guided-missile frigate is substituted for a conventional guided-missile ship in the force. The incremental gain in military effectiveness is larger as each nuclear frigate is substituted with the largest increment being added when the all-nuclear task group is achieved.

Construction of a total of four nuclear aircraft carriers including the *Enterprise* and the *Nimitz* has been approved to date by the Department of Defense. Thus far, the Department of Defense plans to build nuclear frigates to accompany only two of the four nuclear aircraft carriers.

In addition to the five nuclear guided-missile ships built or authorized, the Department of Defense plans to build four of a new class, called DXGN's, at the rate of one per year starting in fiscal year 1970. The fiscal year 1970 shipbuilding bill, H.R. 574, introduced by the chairman of the House Armed Services Committee provides for two nuclear frigates in fiscal year 1970, and long lead funds for three more to be in the fiscal year 1971 program.

The Chief of Naval Operations has stated he supports completion of ——— all-nuclear task groups for delivery to the fleet of 1980, each with a nuclear attack carrier and ——— nuclear frigates. In addition, he has stated the need to have nuclear frigates for independent missions for a total of ——— nuclear powered missile ships in the fleet of 1980. Even when all these nuclear ships are built, only 10 percent of the destroyer-type ships in the fleet of 1980 will have nuclear propulsion. Thus, it is clear that this is a relatively modest rate of changing the destroyer forces to nuclear power.

To attain the Chief of Naval Operations objective of ——— nuclear-powered missile ships in the fleet of 1980, a substantial nuclear frigate building program must be initiated. The program proposed for fiscal year 1970 by Chairman Rivers will do this. The Department of Defense plan will not.

NUCLEAR FRIGATE CONSTRUCTION PROGRAM

Mr. MAHON. If the Navy wants to have nuclear frigates for all its nuclear carriers, what type of building program would be required?

Mr. LEIGHTON. Three to four nuclear frigates per year, sir.

Congress faces a decision as to whether we do or do not get started on a significant nuclear frigate building program. From where the naval reactors organization stands, we need to know if the ships are to be built because we have to establish and maintain an industrial capacity for building nuclear propulsion equipment. No company is going to reserve capacity for some unspecified future program. In other words, in order to maintain industrial interest in building nuclear propulsion plant components we need a firm program on which contractors can count.

If we can get approval for a program, then we can arrange for the industrial capacity to produce it, but it needs to be an agreed, firm program. This is an important point. In the last several years we have lost much of our industrial capacity for building nuclear propulsion plant components for naval ships because of the decline in the number of orders per year. That also causes the expenses to go up considerably. We have to start all over again; we have to pay to make the facilities available. No company just holds them for us free.

Admiral RICKOVER. As it is today, by the time the frigates approved by the Defense Department are completed, the *Enterprise* will have been at sea 11 years before she gets a full complement of nuclear frigates and the *Nimitz* will be at sea 4 years before she gets her complement of nuclear frigates. By that time the third and fourth nuclear carriers are scheduled to be at sea and there will be no nuclear frigates for them.

If we are going to build nuclear frigates for all nuclear carriers, the nuclear frigate construction program needs to go forward at a faster pace.

Mr. LEIGHTON. The fiscal year 1969 appropriation included \$52 million for procurement of long leadtime nuclear propulsion plant components for the first two DXGN's. These components are now being fabricated.

The original Department of Defense plan was to fully fund the first two DXGN's in fiscal year 1970 and two more in fiscal year 1971. However, during reviews preparatory to submitting the 1970 budget, it was

determined that the original schedule for the ships would not be delayed if only one DXGN were fully funded in 1970, provided advance funds for the procurement of long leadtime nuclear propulsion plant components for the third and fourth DXGN's and long leadtime fire control system components for the second and third DXGN's were also included in the 1970 budget. Therefore, the Department of Defense 1970 budget request includes \$196 million to complete the funding of the first DXGN, \$9.9 million for fire control system components for the second and third DXGN's, and \$58 million for nuclear propulsion plant components for the third and fourth DXGN's.

The present Department of Defense plan is to fully fund the second ship next year. Some additional funds will also be needed next year for components for the third and fourth ships if they are to remain on their original schedules.

Further, the rate of authorization of nuclear frigates must be increased to three to four per year soon if the Navy is to come close to meeting the CNO goal of _____ nuclear-powered missile ships in the fleet of 1980. At the rate of one per year, it will be almost the year _____ before the goal of _____ ships is reached.

DXGN'S VERSUS DLGN'S

Mr. MAHON. In his letter of January 24, 1969, to the chairman of the Armed Services and Appropriations Committees, which I will include for the record, the recent Secretary of the Navy recommended that we start construction of the DXGN's as soon as possible and terminate further consideration of building additional DLGN 36 class nuclear powered frigates.

Admiral, do you think we should continue building DLGN's or should we change to DXGN's?

Admiral RICKOVER. Last year I recommended that Congress go ahead with DLGN 37 and DLGN 38 and not wait for the DXGN to be designed, because the Navy needs nuclear frigates to supplement its nuclear carriers. I have never believed in postponing construction of ships today waiting for the new designs of tomorrow. In April 1968, the Department of Defense finally agreed to go ahead with the DLGN 37. The DLGN 38, which was only partially funded, was canceled by the President. However, the Department of Defense plan forwarded to the Congress in April 1969, called for authorization of two DXGN's in fiscal year 1970 and two more in fiscal year 1971. The Department of Defense subsequently changed this plan to one ship per year starting in fiscal year 1970.

The design of the DXGN has progressed well in the last year and is now considered by the Chief of Naval Operations to be militarily superior to the design originally proposed. It is possible to deliver DXGN's on about the same schedule as additional DLGN 36 class ships could be delivered now. The Chief of Naval Operations and Secretary of the Navy Ignatius reviewed the military characteristics as stated in the Secretary's January 24, 1969, letter.

The Navy is ready to go ahead with construction of DXGN's in fiscal year 1970 and I concur that we should.

(The Secretary of the Navy's letter follows:)

DEPARTMENT OF THE NAVY,
OFFICE OF THE SECRETARY,
Washington, D.C., January 24, 1969.

HON. GEORGE H. MAHON,
Chairman, Committee on Appropriations,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: You will recall that during last year's hearings on the subject of nuclear powered guided-missile frigates, the 90th Congress requested that the Navy review the decision to procure the new design DXGN class in lieu of more DLGN 36 class in the fiscal year 1970 program, and also expressed a desire that the Navy review operational requirements particularly with respect to the mix of nuclear versus conventionally powered guided-missile ships. Responding to this interest, last September the Navy commenced a comprehensive review of DXGN/DLGN capabilities, cost, production, and schedule risks, and the analytical studies which formed the basis for the recommended numbers of nuclear and conventionally powered guided-missile ships. The results of this review are summarized in the enclosure for your convenience.

During the past year the DXGN has evolved into a larger ship than the conceptual design described to Congress in early 1968. Of particular interest, instead of one launcher each for antiair warfare (AAW) and antisubmarine warfare (ASW) as originally planned, the DXGN will now have _____ launchers of a new design _____. The DXGN design is now well along and the ship is expected to be about the same size as the DLGN.

Looking to the threat of the late 1970's and beyond and taking into account the development and construction time required for modern guided-missile ships, it is clear that new authorizations for nuclear frigates should include the latest improvements in combat systems we can now design into these ships. In view of a favorable assessment which has been made by the Chief of Naval Operations on the risks involved in the key equipments and systems called out for DXGN, I believe it is prudent to start the DXGN building program in fiscal year 1970. As discussed in the enclosure, the DXGN's improved capability to react rapidly to a cruise missile, its inherent potential for rapid modernization, and the improved reliability and casualty mode operation of its combat system make it a superior overall ship for employment with our high value striking forces and for independent missions. I recommend we start construction of DXGN's as soon as possible.

PAUL R. IGNATIUS, *Secretary of the Navy.*

Encl: (1) Summary of DXGN/DLGN Review.

SUMMARY OF DXGN/DLGN REVIEW

A. Ship capabilities and costs

1. *Characteristics.*—(a) The DLGN and DXGN have many common characteristics. Each ship will displace about 10,000 tons and will be powered by the _____ nuclear propulsion plant. The communications systems, gun systems, and air target surveillance and detection radars are the same in both DLGN and DXGN. The significant configuration differences are in the AAW missile system, the electronic warfare system, the ASW fire control system, and the efficiency of the combat system integration.

(b) The DLGN 36 has two complete Tartar D missile systems providing four channels for missile fire control. The DXGN has one Tartar D system with two channels _____. Instead of one launcher each for AAW and ASW as originally planned, the DXGN will now have _____ launchers of a new design _____. Thus, the DXGN configuration permits complete flexibility in the loadout of weapons as well as the reliability provided by having _____ launchers available for _____. DLGN 36 has two Tartar launchers and one Asroc launcher. The new design launcher in DXGN provides protected stowage of Asroc missiles below decks whereas the DLGN 36's _____.

(c) With respect to magazine size the DLGN 36 has a greater capacity with a total of _____ Tartar missiles which would be important in extremely heavy air defense situations when the fleet could not replenish ammunition immediately. DLGN 36 has a total capacity of _____ Asroc missiles for ASW,

of them in the launcher. The DXGN ——— to a total of ——— based on current planning. Therefore, in a situation which requires extended independent service in an opposing submarine environment, the DXGN can carry more Astroce missiles than DLGN 36, with a corresponding reduction in the loading of AAW missiles.

(d) In the electronic warfare (EW) area the DXGN includes ———.

(e) The DXGN will have a new digital ASW fire control system which simplifies interfaces within the combat system.

(f) The DLGN 36 class has a command and control system built around the inservice ——— digital computer. The combination of this computer with the varieties of analog and digital weapons systems leads to a proliferation of complex buffering and data conversion equipment. The DXGN combat system design uses a new generation digital computer common to both the command and control system and the weapon subsystems, thus improving the data flow among systems and the inherent redundancy and casualty mode performance and simplifying the maintenance and logistic support.

2. *Effectiveness.*—The resultant AAW effectiveness of the two nuclear frigate designs has been compared against a series of standard threat models. In the 1970 environment, the DLGN is predicted to achieve an average of ——— kills per target by its missile system while the DXGN system is predicted to attain ——— kills per target. The improved reaction time and coordination of the DXGN's integrated combat system, and the significantly improved electronic warfare performance, though not directly quantifiable in terms of kills per target, give the DXGN parity with the DLGN in terms of overall defensive AAW capability against aircraft targets. Against the low-altitude, antishipping missile, the DXGN's threat reactive electronic warfare system, acting as both a detection system for the missile battery and as a countermeasure, will be a significant improvement over DLGN-36.

3. *Modernization.*—In the environment anticipated in the early 1980's and with the same threat models referred to earlier, the DLGN is predicted to achieve ——— kill/target ratio and the DXGN Tartar D configuration ———. To combat ———, ——— the DXGN is being designed for convertibility to the advanced surface missile system (ASMS) which is predicted to achieve a significant improvement to ——— kills/target in such an environment. Since the DLGN-36 was not designed for ASMS, it would be more difficult to provide the DLGN with this system.

4. *Costs.*—(a) Comparisons of investment costs of DXGN's and repeat DLGN-36 class ships were made on the basis of a ——— ship DXGN program to complete nuclear escorts for four CVAN's. Except for the lead ship costs associated with every new ship program, the results show variations of only about 2 percent—less than the accuracy of the estimates. Thus, DXGN/DLGN costs are comparable.

(b) With respect to life cycle costs, a manpower reduction of 52 men in a DXGN as compared with DLGN-36 has been identified. This represents about \$18 million per ship undiscounted over a 20-year life cycle.

B. Production and schedule risks

The Chief of Naval Material conducted a review of available shipyard capacity for construction of nuclear frigates and has assessed the risks associated with the ——— major DXGN subsystems currently in development. The conclusions of review are summarized below:

1. *Shipyard capacity.*—There are a number of U.S. shipyards which have or are capable of acquiring nuclear construction capability and their building capacity is sufficient to handle a substantial nuclear frigate program. It is important to note that in the present shipbuilding environment only the Newport News Shipbuilding & Drydock Co. has been successful in obtaining recent awards for construction of nuclear surface ships. Not only is that company building DLGN's 36/37 and CVAN 68, but they are a prominent SSBN/SSN new construction and overhauling yard, a Poseidon conversion yard ———. Considering construction priorities it may be necessary to develop the capability to construct nuclear escorts at an additional yard, if a DXGN program of the size contemplated

by the Navy is approved by the Secretary of Defense and subsequently by the Congress.

2. _____ is considered feasible for DXGN installation.
3. _____ program is on schedule and is considered a low risk program.
4. _____. It is considered feasible to maintain the schedule for the _____ currently planned for DXGN installation.

C. Analytical studies

The major fleet escort force level (MFE) study has been examined thoroughly with regard to the rise in estimated ship costs and to a less rigorous extent with respect to the increase in _____ in order to verify the numbers and mix of nuclear and conventional missile ships. This examination confirms that:

1. ASW considerations are still dominating with respect to numbers of escorts justified.
2. _____ conventional ASW escorts per forward deployed carrier should be AAW configured, and
3. The Navy recommended mix of DXGN and DXG/DX (assuming 4 CVAN's on the line) is still justified.

NEED FOR NUCLEAR FRIGATES

Mr. MAHON. Admiral, last year you listed several events of that year which you felt supported a nuclear powered frigate building program. Would you care to update that list?

Admiral RICKOVER. Yes, sir. Last year I pointed out that for the following reasons we should have such a program—

The rapidly expanding and improving Soviet nuclear submarine fleet;

The declining inventory of overseas bases available to the United States;

The withdrawal of British military forces east of Suez which increases the need for mobility in our naval forces;

The continuing Middle East crisis which jeopardizes major sources of petroleum;

The greatly increased Soviet naval activity in the Mediterranean;

The increasing concern over the Korean situation;

Continuing analysis which shows that the overall 10-year system cost—the cost comparison basis specified by the Assistant Secretary of Defense for Systems Analysis—of nuclear frigates is about the same as of conventional ships;

The declining industrial base for naval nuclear propulsion plants brought about by the lack of a firm nuclear shipbuilding program.

All of these point to the urgency of pushing ahead as rapidly as possible with the application of nuclear propulsion to new major surface combatants. The situation today makes the need for nuclear powered warships even more obvious. Today, we find ourselves with tensions mounting higher in Korea, a continued expansion of Soviet naval activity in the Mediterranean and the Atlantic, and hesitant negotiations on the renewal of treaties for location of U.S. bases on foreign soil. All these items call for the expansion of the nuclear warship building program.

NEED TO MODERNIZE DEFENSES

Admiral RICKOVER. I think we have made a pretty good case for what we believe concerning the need for nuclear carriers and frigates, sir. I don't know whether we have convinced you. I hope we have, since the decisions you make today will have a major impact on our defense capabilities in the 1970's and later.

Some may argue that we should not construct the *Nimitz* class carriers and the nuclear frigates because the danger of war has been reduced; consequently, our resources can be used for other desirable objectives. Granted the hideousness of modern war, can we deduce therefrom that mankind is now wise enough to forgo recourse to arms? A glance at history should put us on guard against those who claim that humanity has now reached a state where the possibility of armed aggression can be disregarded in formulating national policy.

Although a precise comparison of United States and Soviet military expenditures is not available, it is clear that the U.S.S.R. is spending much more annually for new weapons than the United States. Is it then rational for us to fail to modernize our defenses on the assumption that the danger of war no longer exists? The first priority of all life is survival; this is likewise true of nations, and it is the primary function of the legislature. World War II probably would not have broken out and followed the course it did had the United States not been so nearly totally disarmed in the 1930's as a result of decisions made in the years before.

Mr. MAHON. It is true that what happens today had its inception years ago.

Admiral RICKOVER. I would like to add a comment concerning the vulnerability of aircraft carriers. I have said that everything is vulnerable in war—including aircraft carriers. But it must be thoroughly understood that the United States cannot conduct overseas military operations without naval support, for the simple reason that about 98 percent of our supplies must be transported by ship.

Those who cite the vulnerability of aircraft carriers appear to believe we would be able to transport men and supplies without the protection afforded by our carriers. They can come to this conclusion only if they believe an enemy, if we did not have carriers, would permit our cargo shipping and transports to proceed unmolested. This is both wishful thinking and illogical. If it is possible for us to become engaged in an overseas war—and our foreign commitments imply this—then there is no viable way we can use our Army or our Air Force unless we can protect the ships which carry supplies to them.

Another point being made by opponents of our aircraft carriers is that their very existence creates the desire to use them—thus making it easy for us to engage in military ventures.

The concept that a "weapons race" is the cause of war was a widely held theory prior to World War I. Many historical studies of the causes of that war have disproved this fallacy. And certainly it cannot be claimed that World War II was caused by an armaments race. In fact that war might well have been prevented had Britain, France, and the United States been better prepared. It was for this very reason that at the end of World Wars I and II we vowed never again to be caught unprepared. Whether or not to use our military forces is

decided by our civilian leaders, not by the military. The military is asked for advice, but the decision is that of the civilian leadership.

Our Navy is not a direct threat to any country. Its strength lies in its ability to be deployed rapidly at distances from the United States. Its very existence as a "fleet in being" serves to deter those who might otherwise think lightly about starting hostilities.

May I give you a few basic statistics on World War II, sir?

Mr. MAHON. Yes.

LESSONS OF HISTORY

Admiral RICKOVER. When Germany decided to invade Russia in 1941 their staff studies showed that the Soviet Union would be defeated in 8 weeks, 10 weeks at most. Our military attaché in Moscow advised the War Department that the war would be over in 3 months. I well remember that the German estimate for the length of World War I was 3 months.

These estimates should place us on guard against those who believe that long, worldwide wars are no longer possible. Even the present "minor" Vietnamese war has endured for longer than the foremost defense civilians and our military leaders predicted. Having served in both World Wars, I may perhaps be forgiven for not being as optimistic about permanent peace, the beneficence of unilateral disarmament, and the current belief held by many—especially our "intellectuals" that the sheer horror of a long war will compel its avoidance.

It may be apropos at this time to quote a few facts that show why the prevention of war is an order of magnitude less costly than engaging in it. The money we save today in lowering our defenses will surely be but a pittance compared to what it will cost us if we are not strong enough to deter war.

Russia was invaded in June 1941. By winter of that year the cost of the war was already truly colossal. To the 6 million, possibly as many as 8 million military losses in killed and captured were added millions of civilian casualties, a million or more dead of starvation alone in Leningrad during the winter of 1941-42.

By the end of 1941 the Soviet Union had lost 47 percent of her inhabited places, territory in which 80 million persons had resided. That territory had produced 71 percent of the Soviet pig iron, 58 percent of its steel, 63 percent of its mined coal, and 42 percent of its electricity. By the end of their 1941 offensive the Germans had occupied areas that had produced 38 percent of the grain and cattle and 84 percent of the Soviet sugar.

The total military service deaths on the Soviet side reached more than 12 million. The German Federal Republic estimate of Soviet military losses is 13.6 million, including 1.75 million permanently disabled. The war also cost the Soviets some 7 million civilians. The losses, civilian and military, of Finland, the Baltic States, and eastern and southeastern European countries added millions more.

The German military dead number between 3 and 3.5 million; their civilian dead 1.5 million.

The figures I have given are, of course, vastly increased by the military and civilian dead of Great Britain, France, the United States, Austria, Hungary, Italy, Japan, China, and of many other countries. Poland lost one-quarter of her entire population. The total of all soldiers killed in World War II was 26.8 million.

As a relatively minor item it is of interest that the United States supplied the Soviet Union, among other items, with 410,000 jeeps and trucks, 12,000 armored vehicles, 326,000 tons of high-explosive powder, 13,000 locomotives and railroad cars, and 1,800,000 tons of food.

When faced with an actual war that threatened national disaster, even the doctrinaire Communist Party point of view toward the military had to be abandoned. It was realized that the traditional military principles, feudal and reactionary as they might be considered, gave armies staying power in the field. Suddenly the Soviet Army began to assume all the old trappings of military authority: sharp and rigid rank differentiation as the basis for discipline, strict observance of military etiquette, class status for officers, including special privileges and distinctive uniforms and insignia, the recognition of a Russian as opposed to the revolutionary military tradition.

These lessons the Russians have learned well; their present Army, Navy, and Air Force have retained them. They have become a mainstay of their present military proficiency and efficiency. The lesson is there for us, too. We are presently adopting some practices which the Russians used before World War II, lessons they had to abandon when faced with loss of their country—when social science concepts conflicted with reality.

We must not suppose that sharing the prejudices of people means being at one with them, that it is a great act of humility to sacrifice our own ideals instead of attempting to develop them in others.

In this connection, some of the unrest in our country, which stems from the writings and actions of "intellectuals" and social "scientists" is not novel to our own day. It had its counterpart in the period before the French Revolution—which led to the disruption of Europe, war and devastation for a quarter of a century. Some of the results were good, many were bad. Nearly two centuries later France has not yet completely recovered from its effects.

The period before the French Revolution is an instructive one. A gigantic revolution sprang from the revolutionary talk which was common in the salons of the 18th century in which were gathered the celebrities of the aristocracy, literature, and politics.

And to see the first performance of "Figaro," a revolutionary play, the aristocracy of Paris stood in a queue for days and fashionable ladies missed their dinner to get a seat. A month later the play was even performed at Versailles with the future Louis XVIII in the part of Figaro and Marie Antoinette as Suzanne—both beheaded by the Revolution they so innocently played at.

Unfortunately, few people study history, which accounts for the truism that history repeats itself. In fact, not many of our people understand the devastation wrought by World War II. That war ended a quarter of a century ago. Half the people in the United States were not alive then; they, as well as our young people then in their early teens had no direct connection with that war. I believe it is not too farfetched to say that 75 percent of our people have no vivid memory of what a world war really means. The lesson of that war, its page of history, is worth a book of logic.

Mr. MAHON. The observations you have made are most interesting.

JUSTIFICATION FOR "NIMITZ" CLASS AIRCRAFT CARRIERS

Admiral RICKOVER. Thank you, sir. I would like to inform you that the Navy is being asked many questions concerning their justification for building the *Nimitz*-class aircraft carriers. I am working with the Chief of Naval Operations to respond to those questions. I would be glad to provide the information we have for the record if you so desire.

Mr. MAHON. Please do so, Admiral.
(The information follows:)

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., September 5, 1969.

HON. JOHN STENNIS,
Chairman, Senate Armed Services Committee,
U.S. Senate.

DEAR SENATOR STENNIS: This letter is in response to your request of August 29 that I give you my views concerning the importance of proceeding with construction of the three *Nimitz* class nuclear-powered attack aircraft carriers planned by the Department of Defense. You also asked me to comment specifically concerning the impact that deferring the \$377 million requested by the President in his fiscal year 1970 budget to complete funding for the second of these carriers—the CVAN-69—might have on the naval nuclear propulsion program.

I welcome this opportunity to make clear my reasons for believing strongly that these three carriers should be built without delay.

For many years as you know, I have testified that because of the vast improvements being made in weapons technology the Navy should wherever possible go underwater to carry out its missions. The most striking example of where this has been accomplished in the past decade is the transfer of the Navy nuclear war deterrent mission from bombers based on aircraft carriers to Polaris missiles launched from nuclear submarines. Increased emphasis has also been placed on nuclear-powered attack submarines for antisubmarine missions—a policy that should be continued.

I have never hesitated to call attention to what seems to me to be wrong with our military. I follow no "party line." In the past when Chiefs of Naval Operations favored aircraft carriers over nuclear submarines I spoke out against their stand. This is not the case with our present Chief of Naval Operations, Admiral Moorer, who fully supports nuclear submarines.

There are, however, some important Navy missions, which cannot, in any known practical way be carried out by submarines. One of these is the provision of sea-based tactical air power to protect our sea lanes and our air lanes over the seas, as well as to support amphibious operations and overseas military land operations beyond the range of the land-based tactical air power available to us.

In a memorandum of August 25, 1969, to the Secretary of the Navy, the Chief of Naval Operations discusses at length the urgent need to continue building attack carriers. The memorandum, a copy of which is enclosed, responds to questions raised this year by those opposed to proceeding with the carrier building program. I contributed to the preparation of Admiral Moorer's memorandum and I agree with its contents.

It is easy, of course, to take a negative stand on any matter—particularly if one merely urges delay so that the matter may be further studied. That way nothing has to be proved or decided. One contents himself with asking many simple questions about a complex issue; states that the answers he has received do not completely examine all facets of the questions; then insists that the matter requires further study and the decision to go ahead should be delayed.

I do not believe further study of the attack carrier issue will change the basic facts summarized below. These, in my opinion, establish the need to proceed with construction of the *Nimitz* class carriers. These facts are discussed in more detail in the attached memorandum:

Three-fourths of the earth's surface is covered by water; 95 percent of the world's population live within range of carrier aircraft.

The United States is essentially an island between two oceans—an island dependent on free use of the seas for transport of materials and fuels necessary for our survival.

No valid plan exists for overseas military operations by the Army, by the Air Force, or by amphibious forces, which does not depend on our ability to guarantee free use of the seas. Virtually all supplies to Vietnam, for example, have been carried by ships.

Without a modern attack carrier force, the United States is not assured free use of the seas in those areas of the world that are important to us. It is simply not practicable to establish enough land air bases adequately prepared, provisioned, defended, and within range of potential areas of conflict.

To match the continually improving capabilities of our potential enemies, the Navy's carrier force must have a steady input of new ships. This is necessary to upgrade its capability through infusion of modern technology and to replace ships no longer capable of meeting the demands on them—whether because of their inherent design limitations or because of their age.

Seven of the sixteen carriers currently operating in the attack carrier role were launched during or shortly after World War II. Five of these cannot operate several of the modern aircraft types now in the fleet. They will not be able to operate air wings which can survive against Soviet weapons technology of the 1970's.

Each *Nimitz* class carrier will carry 50 percent more aircraft ammunition and twice as much aircraft fuel as the latest conventionally powered attack carrier. This, combined with the unlimited high-speed endurance provided by nuclear power will greatly increase their capability for sustained combat operations.

The *Nimitz* class will also incorporate improved design features in the areas of command and control, intelligence processing, ammunition handling, aircraft catapulting, fire fighting, and damage control.

The *Nimitz* class will be the best protected and least vulnerable carriers ever designed. The added protection is provided by extensive use of armor against bombs and guided missiles, as well as by improved antitorpedo hull design. The unlimited endurance at high speed and freedom from the need to slow down to refuel provided by nuclear propulsion further reduce the carrier's vulnerability.

The second ship of this class, the *CVAN-69*, is scheduled for delivery in 1974. It will replace the *Bon Homme Richard* which will then be a 30-year-old veteran of World War II, Korea, and Vietnam.

If future analysis or budget stringency should require reduction in the attack carrier force level, this should be accomplished by retiring old carriers, not by canceling construction of new ones. Were the Navy required to operate a smaller carrier force, the improved capabilities of the *Nimitz* class would become even more important. The smaller the force, the more important it is that each carrier have the greatest achievable capability.

The maximum life of an attack carrier is 25 to 30 years. A 15 carrier force level requires construction of one new carrier every 2 years if they are to be replaced when they are 30 years old. If the force level were to be reduced to 12, it would be necessary to build a new carrier every 2.5 years.

The three *Nimitz* class attack carriers are the only ones authorized or planned from fiscal year 1964 through 1972, a period of 9 years; this will average out to but one new attack carrier every 3 years.

If we do not continuously modernize our attack carrier force, its ability to protect our naval and overseas military forces and the logistic lifeline for our military and industrial needs against the increasing capabilities of potential enemies will be degraded.

We no longer have friendly oceans to protect us. The Atlantic and the Pacific, once our shield and our protection, are now broad highways for launching attacks against us on, above, and beneath the surface of the seas. Further, the United States, being an island, has no contiguous land masses whence we can conduct military operations to protect our national interests or from which we can obtain the fuels and materials necessary to sustain a large-scale war effort. From our island position the only way by which we can project our national power beyond range of our land bases is through the Navy. For this, other than by all-out nuclear war, we must depend primarily on our attack carriers.

There are lessons to be learned from history that we should not ignore. Germany, the predominant land power during World Wars I and II, was able to use land transportation to extend her influence and support her military and industrial effort. The Germans knew full well that the Allied war effort was almost

totally dependent on overseas transportation. Therefore, they built their naval forces to interdict sea lanes—just as Russia, today's predominant land power, is now doing. German submarine and air attack on Allied shipping almost succeeded in defeating her opponents in both wars.

In contrast, Japan, an island empire, depended in World War II on the seas for her survival, as does the United States today. Aircraft carriers in that war were, therefore, the heart of the Japanese Navy. The turning point in the Pacific was the sinking of half of Japan's carrier fleet in the battle of Midway in 1942. The decisive factor in her defeat was the ability of American submarine and air forces to interdict the flow of oil from overseas to the home islands, thus strangling her industrial and military effort and leading to her eventual collapse.

The ability of the United States to fight for an extended period of time in defense of its territory and of its areas of interest depends on our ability to maintain the flow of material and oil on and over the seas. The sheer bulk of the daily requirement of oil and petroleum products for military and industrial needs precludes adequate peacetime stockpiling.

Your committee has always been fully aware that the vulnerability of our overseas logistic supply lines is greater now than in the past and that this vulnerability is increasing. This is so for the following reasons:

The increased threat of submarine attack brought about by the advent of the nuclear-powered submarine and the improvement in conventional submarines.

The increased threat of air attack because of the increased range of aircraft and missiles and their improved ability to detect targets.

The quantity of fuel that must be transported over the oceans has increased vastly because of the significantly higher consumption rate of modern military units.

Each tanker lost today has a many fold greater impact because of the substitution of a small fleet of larger tankers for the large fleet of smaller tankers used in World War II. Most tankers then displaced 10,000 to 15,000 tons, the largest being 25,000 tons. Today, many tankers displace over 100,000 tons and plans are underway to build tankers of 500,000 tons and larger.

As the number of nuclear submarines and the air strike capability of our potential enemies increase, so does the difficulty of providing logistic support when supply lines are under attack.

Once more we are taught by the war in Vietnam—as so often in the past—that we must have free access to the seas. In spite of the publicity given to airlifting troops and supplies to Southeast Asia, over 98 percent of them have been transported by ship. The war, from the naval standpoint, has been like a war college exercise. Except for naval pilots and naval personnel engaged in river warfare, our naval presence in Southeast Asia has been unchallenged. No plane has attacked our ships; no submarine has fired torpedoes at them.

If we were in a conflict involving the naval and air forces of the Soviet Union or of Communist China, our naval aircraft-carrier forces would have to protect our overseas supply lines, in addition to carrying the war to the enemy. Land-based aircraft could be used only for actions within range of protected air bases. Attack carriers are mobile air bases which can be deployed or withdrawn quickly and at will to meet changing international situations, yet without altering international commitments.

The area of the world covered by our overseas land base system has been shrinking. Pressure continues at home and abroad for us to withdraw our deployed forces. As we approach the "Fortress America" concept there is a growing need for nuclear-powered attack carrier task forces capable of steaming at high speed to any point on the oceans of the world, and of conducting maximum sustained air operations for many days entirely without logistic support—a capability that can be obtained only by continuing to build nuclear-powered warships.

In modern war, particularly the kinds of war we envisage for the future, more military equipment and relatively fewer men will be used. We can no longer fight with rifles, cannon and mortars alone—all of which can be manufactured quickly and in numbers. Today's weapons—ours and those of our potential enemies—are complex and costly; it takes many years to develop and build them. Even in World War II we did not place into action a single airplane that had not been under design when we entered the war.

To build and equip a modern aircraft carrier takes 5 years. If we do not have enough of them when war erupts, it will be too late—no matter what effort and money we may then be willing to expend.

Our country is able to stay ahead in defense only because of our technology. If we do not take advantage of this technology to stay ahead we will have to fight wars with inadequate weapons and suffer higher casualties. Congress, for as long as I can remember, has done everything within its power to provide our military with the best weapons and with services that would reduce loss of life. I believe our people are willing to pay the taxes necessary to provide our men the best weapons our technology makes possible.

Nuclear aircraft carriers are expensive, as are all modern weapons. Opponents of military preparedness concentrate their criticism on the aircraft carrier because it is the largest single item of defense equipment—just as the Department of Defense, being the largest Government department, has its activities and appropriations attacked more than any other department.

All weapons systems have increased in cost because of inflation and greater sophistication. Relatively speaking, however, the carrier cost has not increased as much as most major weapon systems since World War II.

On the other hand, the capabilities of today's weapon systems are much greater than those of their World War II counterparts. To give an example: The nuclear carrier *Enterprise* in 1 month off Vietnam delivered more than twice the tonnage of bombs her namesake, the conventionally powered carrier *Enterprise*, delivered throughout the Pacific campaign in World War II.

When we look at the cost of a nuclear-powered carrier we should remember that toward the end of World War II the war cost us some \$300 million a day; this would correspond to about \$600 million a day now. The smaller cost of being adequately prepared should be set against the greater cost of risking war because of military weakness.

Delay in completing funding of the CVAN-69 will increase its cost. Contracts authorized by Congress during the past 2 years totaling \$133 million have already been placed for components. The nuclear propulsion plant for this ship is now being manufactured and the ship is scheduled for construction in series with the *Nimitz*, now about 20 percent complete. To hold up construction of the CVAN-69, as has been proposed, will delay modernization of the attack carrier force as well as availability of nuclear propulsion in the fleet. It will disrupt continuity of the *Nimitz* class construction program, considerably increasing the cost of these ships.

Let me also point out that a legal interpretation of the proposed amendment, number 136 to S. 2546, to delay the CVAN-69 might require termination of the contracts for the \$133 million of nuclear propulsion plant components already on order from funds appropriated in fiscal years 1968 and 1969. This would disrupt the industrial base for the *Nimitz* class nuclear propulsion plants. It would also have an adverse impact on the willingness of manufacturers to enter into future contracts for naval nuclear propulsion components for submarines and frigates. These manufacturers have a large market available to them due to the considerable backlog of components for civilian nuclear central stations. Lack of a firm naval nuclear program in recent years has already led some naval component suppliers to divert their facilities to civilian nuclear work.

It was the naval program which pioneered development of an industrial capability to design and manufacture nuclear reactor plant components and equipment for naval and civilian use—a development that was arduous, time consuming, expensive. Because of the potential radiation hazards relating to use of atomic energy, it was necessary to develop and implement standards for design, manufacture and quality control much higher than were being used by industry for fossil fueled powerplants. Until 4 years ago, naval orders constituted the major part of the nuclear component business. Since then, steady reduction in the number of nuclear ships authorized each year, and expansion in civilian nuclear power have caused the demand for civilian electric utility reactors greatly to exceed the volume of naval reactor orders.

Industry currently has a backlog of over \$3 billion in unfilled orders for civilian nuclear plants. Because of the growth in demand for civilian nuclear plants and the decline in and uncertainty of future requirements for naval reactors, a number of suppliers have turned to commercial work exclusively. Once a supplier leaves the naval reactor business the task of reconstituting the specialized skills, the quality control, and the engineering groups to meet naval requirements is similar in scope to starting over again. It takes years to develop a company's capability to perform to the standards required, but this capability will be lost in a short time if the experienced technical and production personnel are disbanded.

The nuclear propulsion plant components for the CVAN-69 are presently in varying stages of manufacture. I estimate that about \$40 million of the \$133 million obligated has been expended to date. If a law requiring termination of these contracts were enacted by November 1969, I estimate that \$85 million of the \$133 million would not be recoverable, in view of the expenditures to date and the cost of terminating these orders in the midst of production. Further, the incomplete state of the work on these components is such that they would be of no use for any other purpose; these funds would, therefore, be wasted.

For these reasons, termination of a major portion of the outstanding naval nuclear component orders would be wasteful and would adversely affect our ability to build nuclear plants for future submarines and surface warships.

It is easy to ask for drastic reductions in our armaments; for ending the Vietnam war at once; for doing away with the draft today; spending the money saved to solve domestic problems. But those charged with responsibility for our safety cannot afford to heed these siren calls. Pacifism and unilateral disarmament are not synonymous with peace. We must separate dislike of inefficient military procurement and the desire for peace from the determination of what is needed to protect the United States. What if those who advocate reduction in our military strength prove to be in error? What ultimate gain will there be if we save money but lose our freedom?

Is the decision to build or not build a weapon to be based on cost, or is it to be based on need? The cost of weapons is one of the sacrifices we must pay in order to remain free. I, too, wish the world were different and that it were not necessary to lose lives and expend irreplaceable natural resources for defense. But we must survive in the world as it is, not as we dream it should be.

Freedom comes at a price. If we fail to pay for adequate defense now and our weakness invites attack, we will pay many times as much in dollars to wage war and infinitely more in young lives lost. And let us not forget that if we permit our military strength to erode and lose our freedom, we also lose our ability to improve the lot of our poor and relieve the plight of our cities.

It is as true today as in the past that the price of liberty is eternal vigilance. The early frontiersman had to carry his rifle while he plowed his field. So, too, must we today be armed while we go about our daily work.

Some may argue that we should not construct the *Nimitz*-class carriers because the danger of war has been reduced; consequently our resources can be used for other desirable objectives. Granted the hideousness of modern war, can we deduce therefrom that mankind is now wise enough to forgo recourse to arms? A glance at history should put on guard against those who claim that humanity has now reached a state where the possibility of armed aggression can be disregarded in formulating national policy.

Although a precise comparison of United States and Soviet military expenditures is not available, it is clear that the U.S.S.R. is spending much more annually for new weapons than the United States. Is it then rational for us to fail to modernize our defenses, on the assumption that the danger of war no longer exists? The first priority of all life is survival; this is likewise true of nations and is the primary function of a legislature.

Preaching peace is the calling of the theologian, achieving it the calling of the statesman. Neither has been able to attain it. Universal peace has been the goal of mankind for thousands of years. The noblest of our race has striven for it—all have been unsuccessful. Then, why do some believe that, despite all the lessons of history, we can today achieve peace by unilateral disarmament? The thrust of those opposed to war is presently directed at our military. Are we expected to refrain from asking for the weapons we need to protect our country? Is to ask for these weapons not our duty?

During the 1962 Cuban crisis three attack carriers and five antisubmarine carriers were ordered to take station off Cuba. What would have happened had our Navy not been prepared to cope with the situation? There could have been a nuclear war; alternatively, Cuba might today be a Russian military stronghold.

A statement by Anthony Eden, Foreign Secretary to Prime Minister Neville Chamberlain, on Britain's entry into World War II is worth pondering. He said: "The Prime Minister would tolerate no interference in his policy toward the dictators. He believed he could negotiate agreements with Hitler and Mussolini which they would keep, and he was impatient of any events or views that appeared to him to delay this policy." We know the results of that policy. Yet, those who today oppose military preparedness take the identical position.

We have been unprepared at the outbreak of every war. We have solemnly determined at the end of each war that we will never be caught unprepared again. But the lesson is soon forgotten. Each generation must seemingly make its own mistakes.

Our adversaries are ruthless. Their leaders alone decide what is to be done. I believe that given the mentality of the present Kremlin leadership, the best way by far for us to avoid war is to be strong—strong enough to deter them from believing they can win if they make war on us. Let it be remembered that whenever there is repression in a country, its leaders are tempted to unite their people by shifting domestic discontent to foreign ventures.

In summary, I recommend that construction of the three *Nimitz*-class nuclear-powered attack aircraft carriers proceed in accordance with the plan which has been in effect for the last 4 years; and specifically that the \$377 million needed to complete the CVAN-69 be included in the fiscal year 1970 shipbuilding authorization.

Respectfully,

H. G. RIKOVER,



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, D.C. 20350

IN REPLY REFER TO

25 August 1969

MEMORANDUM FOR THE SECRETARY OF THE NAVY

Subj: Attack Aircraft Carriers

1. There has been a great interest expressed in the Congress and reflected in the press, concerning the nuclear powered attack carrier in this year's budget. To assist in answering queries of the Congress, the press, and the public related to this particular carrier and to the Defense Department carrier program in general, questions and answers keyed to the principal issues involved have been prepared and are attached herewith. In addition, I have set forth below a summary of some of the more important factors associated with carrier requirements.

- o For all levels of military action other than all-out nuclear war -- from a show of force to general war -- the attack carrier is the primary striking force of our Navy. It provides the offensive power necessary to assure free use of the seas and the air over the seas in support of our national objectives.
- o Despite the tremendous technological progress that has been made in transportation and weapons systems in this century, free use of the seas -- which cover three-fourths of the earth's surface -- continues to be essential to the security of the United States, whether we are forced to fight to defend ourselves or to help defend our allies.
- o Today our overseas allies depend upon our support, which must come by sea. There is no valid plan for overseas military operations of the Army, Air Force or amphibious forces with embarked Marines that does not depend on our free use of the seas. For example, 98 percent of all of the supplies which have gone to Vietnam have been carried by ships.
- o Our present national strategy relies heavily upon military forces deployed overseas -- forces capable of responding to a spectrum of contingencies in overseas areas of primary national interest. These forward deployed forces, which must be supplied by sea, provide this country with flexible and rapid response to whatever pressures our potential enemies may apply.

25 August 1969

Subj: Attack Aircraft Carriers

- o A change in national strategy resulting in the withdrawal of our deployed military forces would increase the requirement to maintain a strong maritime posture. The capability of the United States to fight for an extended period in defense of its territory and areas of interest is dependent on our ability to maintain the flow of materials and oil over the seas. The sheer bulk of the daily use of oil for military and industrial needs precludes stockpiling quantities for more than short-term needs.
 - o An effective tactical air capability is essential to sustain our general purpose and logistic support forces against a determined enemy using modern weapons. Sea-based and land-based tactical aircraft are required to provide support for our forces in the areas of the world where we must be prepared to fight.
 - o Land-based tactical aircraft can be employed when their land bases have been adequately prepared, provisioned and defended, and when they are located within range of the area of conflict.
 - o Sea-based tactical aircraft are required when land bases are not available or do not have the capacity to meet the required tactical aircraft needs. The attack carriers can quickly concentrate this sea-based tactical air power.
2. In order to continue modernization of the Navy's attack carrier force, including increased use of nuclear propulsion in the fleet of the mid-1970's, the President's budget for fiscal year 1970 includes a request for \$377 million to complete funding for the second of three NIMITZ class nuclear-powered attack carriers. Contracts amounting to \$133 million have already been placed for components authorized during the past two years for this second ship, the CVAN 69. The nuclear propulsion plant for the CVAN 69 is currently being manufactured and the ship is scheduled for delivery in 1974.
3. The United States is currently reassessing all of its defense needs including the number of attack carriers that will be required in future years. We must make clear the need to continue with procurement of the CVAN 69 in fiscal year 1970, regardless of any change that may be made in the attack carrier force level. The CVAN 69 will replace an old World War II carrier; hence, it will not increase the force level.



T. H. MOORER
ADMIRAL, U.S. NAVY

THE ATTACK AIRCRAFT CARRIER

The following questions and answers have been prepared to set forth in simple terms, facts and rationale relating to the United States Navy carrier program. In their brief form, these answers cannot cover in detail all aspects of carriers, but they do present an unclassified discussion of the principal issues involved.

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REQUIREMENTQ. What is unique about the attack carrier?

A. First, the carrier provides air power at sea. World War II conclusively demonstrated that surface forces cannot survive in the face of a strong air threat without air superiority. The carrier's fighters provide the protective cover under which her attack aircraft can strike, or other naval operations such as amphibious assaults and logistic support can be accomplished. It is an historical fact that in World War II the carrier strike forces, Japanese as well as American, always defeated land-based air forces. This was due primarily to the mobility of the carrier which permitted the sea-based force to select the time and place of the action.

Today, carrier-based air still enjoys a superiority over the tactical air forces of our potential enemies. The radius of action of U.S. Navy carrier-based aircraft is about 600 nautical miles. Only 20% of the current Soviet bloc tactical aircraft have a combat radius exceeding 600 nautical miles. The carrier can stand off and reach the enemy with the full weight of its strike effort, but only a small part of the enemy's air forces can be directed against the carrier.

Second, the tactical air capability provided by the carrier is mobile. It can be moved any place on the three-fourths of the earth's surface covered by the seas, without any international agreements, at a rate of more than 600 nautical miles per day. 85 percent of the area covered by our military contingency plans and 95 percent of the world's population lie within range of carrier aircraft operating in international waters. Carrier mobility permits the concentration of sea-based air power to the degree required by the task at hand. In the latter stage of World War II, 16 aircraft carriers were concentrated in Japanese home waters, and on a single day, more than 1100 fighter and attack missions were launched by this force against Japan. As recently as the air campaign against North Vietnam, five attack carriers were maintained in the western Pacific.

Third, the carrier itself is a floating air base, complete with aircraft; ordnance and jet fuel required to fly them; shops to support them; men to maintain and operate them; and facilities to house and feed those men.

Fourth, a particular feature of the carrier weapons system is its operational flexibility which permits it to be effectively employed across the full spectrum of warfare, from show of military force, through limited wars, to general conflict with conventional weapons, to nuclear war.

Q. What other naval forces are there to contest the free use of the seas?

A. The Soviet Union is embarked on a program which reveals a singular awareness of the importance of sea power and an unmistakable resolve to

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become the most powerful maritime force in the world. They demonstrate a thorough understanding of the basic elements of sea power: knowledge of the seas, a strong modern merchant marine, and a powerful new Navy. They are surging forward with a naval and maritime program that is a technological marvel.

The Soviet Navy has undergone a continuing modernization program including the building of missile-armed cruisers, helicopter carriers and several new classes of nuclear and conventional submarines. As a result, the Soviet Navy has become a fleet capable of sustained open ocean operations. For the first time in its history, the Soviet Union is using a deployed naval force in support of foreign policy in areas not contiguous to its borders. Their force in the Mediterranean includes warships armed with surface-to-surface and surface-to-air missiles, amphibious ships with naval infantry embarked, as well as torpedo and missile-armed submarines.

The Soviet submarine force constitutes a threat against the continental United States, U.S. naval forces, and our unrestricted use of the seas. Several classes of Soviet submarines, both conventional and nuclear powered, carry cruise missiles which have a maximum range of about 400 nautical miles.

Q. Since the U.S. considers attack carriers to be so important, why do the Soviets not have carriers, and why is Britain no longer building them?

A. We, of course, do not know all the reasons the Soviets are not building attack carriers. An obvious factor affecting their decision must be their central geographic location, within and physically contiguous to the European and Asian land masses. This makes them far less dependent on overseas logistic supply lines and on overseas alliances for their national objectives and for their defense than is the case for the United States. The United States is essentially an island lying between the Atlantic and Pacific oceans. We do not have contiguous land masses whence we can conduct military operations to protect our national interests or whence we can obtain the fuels and materials necessary to sustain a war effort. For these reasons, sea-based air power is not nearly as vital to the security of the Soviets as it is to the United States.

The Soviets control an extensive system of land air bases throughout areas of the world vital to them. We have no such comprehensive land-base system. Their predominant land position has required mutual defense treaties with but two nations which do not share a land border with her. Our island position, on the contrary, has led us to negotiate treaties with 43 overseas nations. From our island position, the only way by which we can project our national power beyond range of our land bases is through our Navy. For this, other than by all out nuclear war, we must depend primarily on our attack aircraft carriers.

The Soviets, because of their advantageous position as the predominant land power, and because they understand how vital it is for the United States to maintain free use of the seas, have to date structured their Navy with the objective of interdicting our sea lanes.

REQUIREMENT

An analogous situation is that of Germany, in World War I and II. As the predominant land power she was able to use land transportation to extend her influence and support her military and industrial effort. The Germans full well knew that the Allied war effort was almost totally dependent on overseas transportation. Therefore, they designed their naval forces around interdiction of sea lanes.

On the contrary, Japan - an island empire - must depend on the seas for her survival. Their attack carriers in World War II were, therefore, the heart of their Navy. The turning point in the Pacific war was the sinking of her carriers in the Battle of Midway in 1942. And the deciding factor in her defeat was the ability of United States air and submarine forces to interdict the flow of oil from overseas to the Home Islands; this strangled her industrial and military effort and brought about her eventual collapse.

Britain, also an island empire, understood the need of a Navy to implement its national interests and to assure the in-flow of food, raw materials and fuel. She maintained a powerful carrier fleet throughout World War II. The British Navy and its carrier force declined along with Britain's reduced stature as a world power and because of her fiscal stringency. She was able to accommodate this decline because of her increased reliance on American power.

There is no doubt that attack carriers would enhance Soviet capability to operate their surface fleets beyond the range of their extensive network of land air bases. Lack of this capability was evident during the Cuban crisis. A Soviet Naval Chief has said that they expected to have four large carriers in operation by about 1948. World War II, however, intervened. By the early 1950's, when they began to build their modern Navy, the Soviets were far behind the United States in carrier technology as well as in industrial capability. Recently, they built two medium sized modern helicopter carriers. As they gain experience with these, and as they continue expanding their naval power, they may well build attack carriers to extend the areas in which they can project their national power.

Despite the tremendous technological progress made in transportation and weapons systems in this century, free use of the seas - which cover three-fourth's of the earth's surface - continues to be essential to the security of the United States, whether to defend ourselves or to help defend our allies.

The United States - a maritime nation - cannot maintain its position as a first rank world power if it does not possess the capability to maintain free use of the seas. For this we must have a modern attack carrier force capable of establishing air superiority in those areas vital to our national defense but not within reach of our land-based tactical air power.

Whether one takes the optimistic view that a permanent East-West detente can be negotiated or the pessimistic view that ultimately we shall have to fight for our liberties, this Nation has no future if it allows itself to be outmatched militarily.

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Q. It has been suggested that the United States has been playing the role of world policeman and that we should withdraw from overseas bases. Would carriers continue to be useful under these conditions?

A. Yes, in fact the flexibility of the mobile carrier would make it the most useful and least provocative of all our major weapons systems under this kind of strategy.

The carrier can deploy quickly, can remain over the horizon out of sight in order not to upset a delicate situation, and still be available to use its air power at a moment's notice; or, should the situation so indicate, the deployed carrier can appear on the scene, and by its very presence provide a stabilizing influence by serving as tangible evidence of U.S. interest. Without overseas bases, the attack carrier would be the only means by which the U.S. could provide tactical air support for overseas military operations in response to enemy actions and protection of logistic supply lines for material and oil essential to sustain our industrial and military capability.

Q. Would carriers be of use in a major conflict?

A. In World War II there were more than 100 carriers of all kinds in the U.S. Navy, employed in all theaters. The need for the carriers was so great that 85 percent of the carrier force was kept in a deployed status.

Because all of the tactical air fields in South Korea were quickly overrun and captured by North Korean ground forces in the first campaign of that conflict, virtually total reliance for tactical air support for our beleaguered ground forces was placed on the carriers during the initial part of the war.

In the Vietnam War, the first strikes delivered against the North Vietnamese were flown from carriers. During the air war in North Vietnam, five attack carriers were deployed to the SEVENTH Fleet.

Attack carrier forces feature prominently in all of our current major war plans. Although carrier employment has been primarily concerned with conventional wars, the carrier has a potent nuclear capability. All carrier attack aircraft are designed to deliver nuclear weapons and all attack pilots are trained in their delivery. Tactical nuclear weapons on board our carriers for delivery by carrier-based aircraft are at all times in the hands of U.S. nationals and cannot be seized by the enemy.

The carriers could play an essential role in a large scale conflict in Europe. Such a war could escalate rapidly. Forward bases, fuel supplies, and stockpiles might be overrun by advancing Soviet Bloc forces. Under such circumstances attack carrier forces could be our best and possibly our only means of providing tactical air support in a controlled response to include tactical nuclear weapons. In an all out nuclear exchange, the mobile carrier, which is more likely to survive than fixed land bases, could well provide the balance of power.

EFFECTIVENESS

Q. It has been said that only one third of the carrier force is ready to fight at any one time - is this true?

A. No. At any one time more than three-fourths of our carriers are ready. For example, on 1 August 1969 fourteen attack carriers were at sea or immediately ready for sea. One more would be ready in 5 days, and the one carrier which is in overhaul, could be deployed in 60 days.

Q. Why can't land air bases be used instead of carriers?

A. Land bases can be used effectively only when they are within range of the trouble spot. An extensive network of overseas bases would be required to cover the potential crisis areas of the world covered by the contingency plans of our military strategy.

The area of the world covered by our overseas land base system is constantly shrinking. For example, at the end of the Korean War, this country had 551 overseas bases. Today we have fewer than 173. Operational U.S. overseas land air bases have declined in number from 105 in 1957 to 35.

Retaining existing U.S. land bases on foreign soil or adding new ones can involve additional U.S. political and military commitments in exchange for base rights. These commitments may be far more onerous than dollar costs. Additionally, the presence of bases on foreign soil has been a source of "Yankee go home" sentiment and charges of U.S. intervention and neo-colonialism.

Furthermore, land bases on foreign soil are vulnerable to political action. Regardless of pacts or base agreements, one nation can, as has been demonstrated repeatedly in recent years, unilaterally cancel a treaty, and our bases in that nation are lost to us. This has occurred in Morocco and France.

Even when our bases are not taken from us outright, their use can be temporarily denied to us for political reasons. This occurred during the Lebanon incident in 1958, when the Greek government denied landing and even overflight permission to our land based tactical air forces deploying to the near east.

Attack carriers, on the other hand, are mobile air bases which can be retained in home waters and deployed or withdrawn to meet changing international situations without altering our international commitments.

Q. Why can't we build land bases after a war starts?

A. We can, after agreement is reached with the host country, and provided suitable sites are available which can be defended and logistically

EFFECTIVENESS

supported.

An individual base has been constructed in nine months. However, in Southeast Asia, our experience was that two years from decision time were required to build up the needed base facilities. An eventual goal of moving into place in 90 days is planned.

Q. Why can't commercial air fields be converted to military fields?

A. They can. Kits are being developed to be used for converting available runways into military airfields. However, for one tactical aircraft wing (approximately 90 aircraft - the equivalent of one carrier air wing) a kit includes over 6000 people, 7000 tons of cargo, and 1500 vehicles in its initial lift. It must be maintained by a daily logistic resupply flow of 3200 tons of consumables. This daily resupply, if provided by airlift, would require more than 100 C-5A transport aircraft. Since this is obviously impractical, overseas land bases are dependent on keeping the sea lanes open for logistic support. 98 percent of supplies, material, and equipment in Vietnam are sent by sea lift. In many areas adequate air defense of our sea lanes, and air lanes over the sea, can only be provided by carrier aircraft.

SURVIVABILITYQ. Can carriers survive in today's kind of war?

A. Yes. Modern attack aircraft carriers with their embarked aircraft are the most powerful and toughest warships ever built. They are essentially offensive weapon systems designed to conduct strike operations against an enemy in a combat environment. Although the inherent mobility of the carrier makes it a difficult target for an enemy to find and attack, carriers are nevertheless designed to absorb damage from enemy action with minimum disruption to their operational capability.

Within the range of warfare situations, the greatest probability of conflict lies below the general war threshold. There have been fifty wars or near wars since the end of World War II. Yet no carrier has suffered loss or damage from hostile action during this period, in spite of the fact that all but two of our currently designated attack carriers have been involved in actual combat operations since World War II.

In contrast, all of the tactical air bases in South Korea were overrun by enemy ground forces in the Korean War. Some, with their stocks of ammunition and aircraft fuel were captured a second time by Chinese Communists. In South Vietnam over 300 helicopter and fixed wing aircraft have been destroyed on airfields and over 3000 more damaged by enemy ground attacks.

Q. Can a carrier survive in a nuclear war?

A. If a carrier suffers a direct hit by a nuclear weapon it will be destroyed, as well as any other target, but the carrier is hard to hit.

The mobility of the ship target offers considerable protection, which increases with the range of the weapon considered. Against ICBM attack, the aircraft carrier, in contrast to cities, industrial complexes, land air bases, ports, missile sites and similar fixed targets, is virtually immune to pre-targeting. It can move twelve miles or more during the time of flight of an ICBM. If its position is precisely known at a given time, three hours later the carrier is somewhere in the area of a circle of more than 25,000 square miles.

The greatest threat to the carrier in a nuclear war would be posed by the Soviet air and naval forces, especially submarines. There would undoubtedly be heavy losses on both sides. However, because of the enemy's problems in locating and targeting the carriers and penetrating their defenses, the probability is very large that some of these ships would survive to deliver their own nuclear punch.

SURVIVABILITYQ. Isn't the carrier vulnerable to cruise missile attack?

A. Anti-ship missiles, whether air, surface, or submarine launched constitute the major threat to U.S. surface forces. Missiles can outrange the guns of the U.S. Navy's surface combatant ships.

However, the carrier's aircraft greatly outrange even the most advanced Soviet cruise missile. Further, the launching platforms, the surveillance systems, and the cruise missile itself are all vulnerable to attack and destruction by carrier aircraft and other defense forces.

Carriers have faced the threat of guided missiles before, and have survived by a clear margin. In World War II, the Japanese launched 2314 aircraft in Kamikaze attacks against the U.S. fleet, with the carriers as the principal target. Despite the fact that the Kamikaze was a guided missile with the most sophisticated guidance system possible—the human brain—not a single attack carrier was sunk by them.

Today, the carrier is the fleet's best defense against cruise missiles because of the ability of its aircraft to attack the launching platforms before they are within missile firing range of our forces and to shoot down the anti-ship missiles that are launched while they are in flight.

The carriers themselves are able to evade missile capable forces both by their mobility and by the task force defense in depth. A recent analysis shows that carriers could continue to operate in the Gulf of Tonkin and still remain out of range of any possible Soviet Styx surface-to-surface guided missiles emplaced at launching sites in North Vietnam. It is an important related fact that no potential North Vietnamese missile launching platform, aircraft or PT boat, has penetrated the U.S. carrier task force defense to within attack range of the carriers.

Q. Isn't the carrier vulnerable to torpedo attack from submarines?

A. The Soviets now have by far the largest submarine force in the world — about 375 submarines, all built since World War II. We have 143, including 61 diesel submarines most of which are of World War II vintage. Thus, they have a net advantage of about 230 submarines. It is estimated that by the end of 1970 they will have a numerical lead even in nuclear submarines. Nuclear powered submarines pose a greater threat to our surface ships than diesel powered submarines because of their submerged high speed endurance.

It is because of this threat that the Navy maintains a substantial force including carriers, long range aircraft, submarines, and surface combatants assigned to the anti-submarine mission. These forces work in conjunction with an extensive ocean surveillance system.

SURVIVABILITY

The attack carrier forces, with their integrated anti-submarine defenses and their high speed, are the least vulnerable of our surface forces to torpedo attack. A nuclear powered carrier force, with its sustained high speed endurance and freedom from the need to resupply propulsion fuel, can minimize the opportunities for enemy submarines to gain attack position.

Q. If enemy bombs, missiles or torpedoes are able to reach the carrier -- break through the defenses -- then can't the carrier be sunk?

A. If our carriers do sustain hits from conventional bombs, torpedoes or missiles, damage will occur, but that does not mean that the ship will be put out of action or sunk. Modern carriers are extremely tough ships.

No attack carrier built during World War II or subsequently has been lost to enemy action. The ESSEX class fought through the aircraft attacks, Kamikazes, and submarine attacks of World War II.

Subsequent carrier designs have incorporated even more extensive protective features, such as armored flight decks, improved torpedo protection systems, and internal damage-limiting features which make them very difficult to sink with non-nuclear weapons.

The hardness of the modern attack carrier is illustrated by the accident in the ENTERPRISE early this year when nine major caliber bombs detonated on her flight deck. Yet the ship could have resumed her scheduled air operations within hours, as soon as the debris was cleared from the after end of the flight deck.

This accident, as well as other carrier accidents which have occurred in recent years, have been studied in detail to develop corrective action to reduce the possibility of future occurrence and to determine design features which can be incorporated in our new carriers to make them even less susceptible to damage.

The new carriers will give our attack carrier forces the best protective capability we can build into our ships. The new NIMITZ class nuclear powered carriers are the best protected and least vulnerable carriers ever designed. The added protection is provided by the extensive use of armor plating against bombs and guided missiles and improved anti-torpedo hull design. The high speed endurance and freedom from the need to slow down to refuel provided by nuclear propulsion, significantly reduces the nuclear carrier's vulnerability to attack.

If we were to reduce our future sea-based tactical air capability by failing to provide the needed improvements in carrier design, the overall vulnerability of the Navy and the logistics life line for all services would be increased.

COST

Q. Isn't a carrier very expensive?

A. Yes, carriers are expensive. But so are all modern weapons systems. In fact the carrier has increased in cost the least of any other major weapon system since World War II. The NIMITZ will cost about 10 times as much as the ESSEX did in 1944. But many of the latest fighter, attack, and transport aircraft are more than 100 times as expensive as their World War II counterparts.

Of course, the capabilities of today's weapon system are much greater than their World War II counterparts. For example, the World War II carrier ENTERPRISE fought throughout the Pacific Campaign; yet, the nuclear carrier ENTERPRISE delivered more than twice the tonnage of bombs in one month in Vietnam that her predecessor delivered throughout World War II.

Carriers are not more expensive than alternative systems, on either an investment or operating cost basis, particularly when their long life and active utilization are considered.

The investment in an attack carrier has an assured return for about 30 years. During this time the carrier can provide an air base anywhere in the international waters of the world without prior international agreements or U.S. commitments in exchange for base rights. Of the 44 carriers built by the Navy since the LANGLEY, CV-1, in 1922, which would today be classed as attack carriers, 41 have launched air strikes in combat. One of these, BON HOMME RICHARD, has been in action in three wars.

The investment in a land base has an assured return only as long as the base is needed in the specific location, and international, political, and military conditions do not deny or restrict its use when needed. The large investment is lost as soon as the particular job is finished for which the base was created. The investment in an aircraft carrier remains valid for the 30-year life of the ship.

Q. How do the cost of sea-based and land-based tactical air power compare?

A. Relative investment and operating costs vary in different situations, but overall costs are about the same when basing, support, logistic and defense costs are considered for both. A land-based tactical air wing has about the same number of attack aircraft as a carrier air wing, and some types of tactical aircraft are common to both services; for example, the Navy-developed PHANTOM fighter-bomber.

COST

Historically, in the recent bombing campaign into North Vietnam, it cost more to deliver one ton of ordnance to North Vietnamese targets from land bases than from attack carriers, even though the land-based tactical jet aircraft averaged more tons delivered per sortie. The higher cost of land-based air was due primarily to greater base-to-target distances, because the mobility of sea-based tactical air permitted stationing attack carriers closer to the targets. The longer base-to-target distances generated a heavy aerial refueling support requirement for land-based air operations.

Q. What is the composition of a carrier task force, and how much of it is required for its own defense?

A. There is no standard carrier task force composition. An attack carrier task force includes carriers and surface combatants with anti-aircraft and anti-submarine capability; sometimes a task force includes submarines or fast replenishment ships. As the name itself implies, a task force is constituted to perform a task, and the number and kinds of ships involved are related to that task. Under some conditions a carrier might be accompanied by six surface combatants, under other circumstances, such as prevail today in the Gulf of Tonkin, by only one or two.

We do not buy ships on a task force basis. New ships are procured to keep our Navy modern and capable, in numbers based on the expected threat. Naval task forces are constituted from the overall inventory of ships in the fleet.

The number of surface combatants included in a carrier task force is directly related to the anticipated enemy opposition. The cruisers and destroyers attack and destroy the enemy's submarines, surface ships and aircraft. The carriers and other ships operate together in a task force for mutual support and increased effectiveness in the destruction of enemy forces, an essentially offensive action.

Although the carrier does carry fighters for defense of the force in depth against aircraft and missile attack, these fighters can be employed offensively to achieve air superiority, and then used as bombers in an attack role. Again, the percentage of the carrier's aircraft devoted to defense depends upon the threat. Today in Southeast Asia, only 5 percent of the aircraft being operated by the engaged attack carriers are assigned the role of defending the carriers.

FORCE LEVELS

Q. Is it true that the force level number of 15 attack carriers is simply a tradition based on the fact that the Navy has maintained 15 carriers since World War II?

A. No, this recently publicized assertion has absolutely no basis in fact. At the end of World War II, during which the Navy had more than 100 carriers of all types, there were 20 carriers in the active fleet which could be classed as attack carriers. By June 1950, at the beginning of the Korean War, the number of attack carriers had been reduced to seven. The loss of all of our tactical airfields in Korea during the first days of that conflict, created an urgent requirement for carriers to provide the desperately needed air support for our ground forces. Fortunately there were relatively new ESSEX class carriers laid up in mothballs in the reserve fleet. By reactivating these ships, the number of attack carriers was increased to 16 by the war's end.

Since 1953, the number of attack carriers has fluctuated between 19 and 14 to meet changing defense requirements and budget constraints.

For the past five years a total of 16 attack carriers have been operated at a very high tempo to meet our defense needs.

Q. What is the currently authorized carrier attack force level?

A. Fifteen attack carriers plus an anti-submarine carrier acting in an attack carrier role for the duration of the war in Southeast Asia.

Q. How is the attack carrier force level determined?

A. The attack carrier force level is determined by the requirements of national strategy derived from our foreign policy. Attack carrier force levels reflect the portion of the total tactical air requirement that it is necessary to operate from sea bases. The desired force level is affected by the geographical areas and the contingencies considered.

A major element of our foreign policy is predicated on overseas alliances. Our overseas allies depend upon our support, which must come by sea and the air over the sea. There is no viable plan for overseas military operations of the Army, Navy, or Air Force that does not depend on our free use of the seas. For example, 98 percent of all the supplies which have gone to Vietnam has been carried by ships.

Our present national strategy relies heavily upon military forces deployed overseas -- forces capable of responding to a spectrum of contingencies in overseas areas of primary national interest. These forward deployed forces provide this country with flexible and rapid response to whatever pressures our potential enemies may apply.

Even if our future national strategy were to be changed to withdraw our deployed military forces, our requirements for defense would still extend overseas. The capability of the United States to fight for an extended period in defense of its vital national interests is dependent on our ability to maintain the flow of materials and oil over the seas. The sheer bulk of the daily use of oil for military and industrial needs precludes stockpiling quantities for more than short-term needs.

An effective tactical air capability is essential to sustain our general purpose and logistic support forces against a determined enemy using modern weapons. Sea-based and land-based tactical aircraft are required to provide support for our forces in the areas of the world where we must be prepared to fight.

Land-based tactical aircraft can be employed when their land bases have been adequately prepared, provisioned and defended, and when they are located within range of the area of conflict.

Sea-based tactical aircraft are required when land bases are not available or do not have the capacity to meet the required tactical needs. The attack carriers can provide this sea-based tactical air power.

In our current national strategy, there are two primary overseas areas critical to our national interest, where an adequate base structure under U.S. control is not currently available. They are the Mediterranean and Western Pacific littorals. Attack carrier forces in the SIXTH and SEVENTH Fleets provide the only assurance of a capability for quick reaction to threats to our national security and objectives in these areas.

Attack carriers are also required in the Atlantic and Pacific areas contiguous to the United States. For example, the U.S. response to the Cuban and Dominican Republic crises relied heavily on attack carriers in the Atlantic.

Attack carriers operating near the U.S. in the FIRST and SECOND Fleets also provide for fleet training and maintenance time in home ports. These carriers may be sent individually to reinforce deployed forces, or the entire fleets may deploy from home waters. In this latter connection, the home fleets conduct frequent maneuvers and fleet exercises, proving new equipments, and developing new doctrines for their employment. Not more than one or two carriers of the total are in overhaul at any one time.

FORCE LEVELS

The number of 15 attack carriers is based upon commitments as well as empirically established planning factors including maintenance and training requirements, which have been validated through experience.

In the past, when similar deployment cycles and operating conditions prevailed, the carrier commitments dictated by the strategy could not be fulfilled when the force level was reduced below 15.

Q. Does a force level of 15 provide enough carriers to cover contingencies?

A. Recent experience has demonstrated that a force level of fifteen carriers is inadequate to prosecute the war in Vietnam and simultaneously maintain the posture dictated by our present strategy. In recognition of this deficiency, the Department of Defense has approved a force level of sixteen attack carriers for the duration of the war in Southeast Asia. The Navy was able to meet this augmented force level only by employing one anti-submarine carrier in the attack carrier role.

Whether fifteen carriers is an adequate number under wartime conditions is open to question. It is not possible accurately to foresee the locales of future conflicts as they relate to the existence of adequate land bases, the political availability of such bases, and their survivability in action.

Our capability to augment our active carrier force in time of war or crisis is almost gone. There are no longer any attack carriers in the reserve fleet. Since 1952, nine modern attack carriers have been built. The remaining six attack carriers operating today were launched during or shortly after World War II. Four of these are of the ESSEX class. Even the most modern of the ESSEX class carriers cannot operate the latest generation of tactical aircraft, the F-4, A-6, RA-5C, and E-2. We will soon reach the point where the ESSEX class air wing cannot survive in the threat environment established by new Soviet tactical aircraft.

As this capability to augment the established attack carrier force from the reserve fleet or from ESSEX class carriers in the anti-submarine force disappears, so does our flexibility in attack carrier force levels. It is apparent that we will fight future wars with the attack carriers in the fleet at the war's inception.

In summary, a force level of fifteen attack carriers of modern design has been determined to be a minimum requirement for the type of conflict we have experienced since World War II and to permit us to meet peacetime deployment requirements giving due consideration to peacetime planning factors. This number may not be adequate to provide the required tactical air power for future contingencies, particularly in view of the steady

FORCE LEVELS

deterioration of our overseas base structure. We will be unable to compensate for the loss of overseas bases to military force or political action in the future by quickly building up carrier force levels over and above peacetime levels. It takes about five years to build a new attack carrier. There are no longer any modern attack carriers in reserve.

Q. Couldn't the attack carrier force level be reduced by using some form of dual crew arrangement on our carriers, as we do on Polaris submarines, to keep all of our carriers overseas?

A. The Navy has conducted studies to determine the feasibility of additional crews for carriers to increase the number continually deployed. It has been determined that such measures are not economical, efficient or desirable in view of the inherent mobility of the carrier itself with its crew aboard.

In the Polaris system, dedicated as a nuclear deterrent, only the deployed ships have maximum effectiveness. The full Polaris fleet must be overseas ready to fire its missiles in the first few critical hours of a nuclear war.

By contrast, attack carriers must be ready over a longer span of time, for a wider spectrum of war situations, where sustained capability over weeks and months is important. Moreover, we need carriers in home waters to react to crises close to the United States. For example, our contingency operations for the Cuban crisis and for the Dominican Republic crisis relied heavily on sea based tactical air to be furnished by home fleet carriers.

It is most efficient, under peacetime conditions, not to keep all carriers at forward stations. In emergencies, however, 85 percent could be maintained in a deployed status. To keep a larger part of our carrier inventory overseas year in and year out during peacetime would require overseas bases for routine maintenance and repair, and homes and schools for dependents. This would certainly add significantly to our gold outflow problems.

Q. Will the new carrier requested by the Navy, CVAN-69, this year increase the attack carrier force level?

A. No. When the CVAN-69 joins the fleet it will not increase the number of carriers in the Navy's active inventory. It will replace one of the old World War II veterans which will then be thirty years old.

FORCE LEVELS

Q. Since the nuclear powered NIMITZ-class carriers are so much more capable than the older ships they will replace, why do we need a one for one replacement?

A. Attack carriers must be able to conduct operations at sea against determined opposition, with aircraft capable of achieving air superiority against first line enemy equipment.

The new NIMITZ class carriers are needed to meet the growing Soviet threat.

The World War II ESSEX class ships in our carrier force cannot operate several current modern aircraft necessary to cope with present Soviet planes and weapons. The ESSEX class will not be able to operate an air wing in the seventies which can survive in the environment of Soviet weapons technology.

As our weapons improve with time and technology, so do those of our potential enemies. In World War II, the ESSEX class carriers operated about 90 aircraft representing the most advanced technology of that era, and able to meet the Japanese threat on better than equal terms. Today, the replacement for the ESSEX will be the NIMITZ, again capable of operating about 90 aircraft capable of coping with the most advanced Soviet weapons technology.

Q. Why can't our old carriers be modernized instead of building new attack carriers?

A. It is not practical or economical to attempt to further modernize the ESSEX class attack carriers. These ships have previously been converted from straight deck, hydraulic catapult configuration to angle deck, steam catapult configuration. No growth factor is left.

The ESSEX class attack carrier cannot operate a number of the newer aircraft already in the fleet, such as the F-4 Phantom II, RA-5C Vigilante, A-6 Intruder and the E-2 Hawkeye. A significant fact is that these older carriers experience about twice the landing accident rate with attendant higher cost in lives and aircraft, compared with the larger deck FORRESTAL class. The problem is simply that aircraft size and speed have become excessive for the smaller size World War II carrier decks.

The ESSEX design will be over 30 years old when the CVAN-69 joins the fleet. These old ships which have served the Navy well through three wars, will simply be worn out.

FORCE LEVELS

Q. If the attack carrier force level is reduced, will the CVAN-69 still be required?

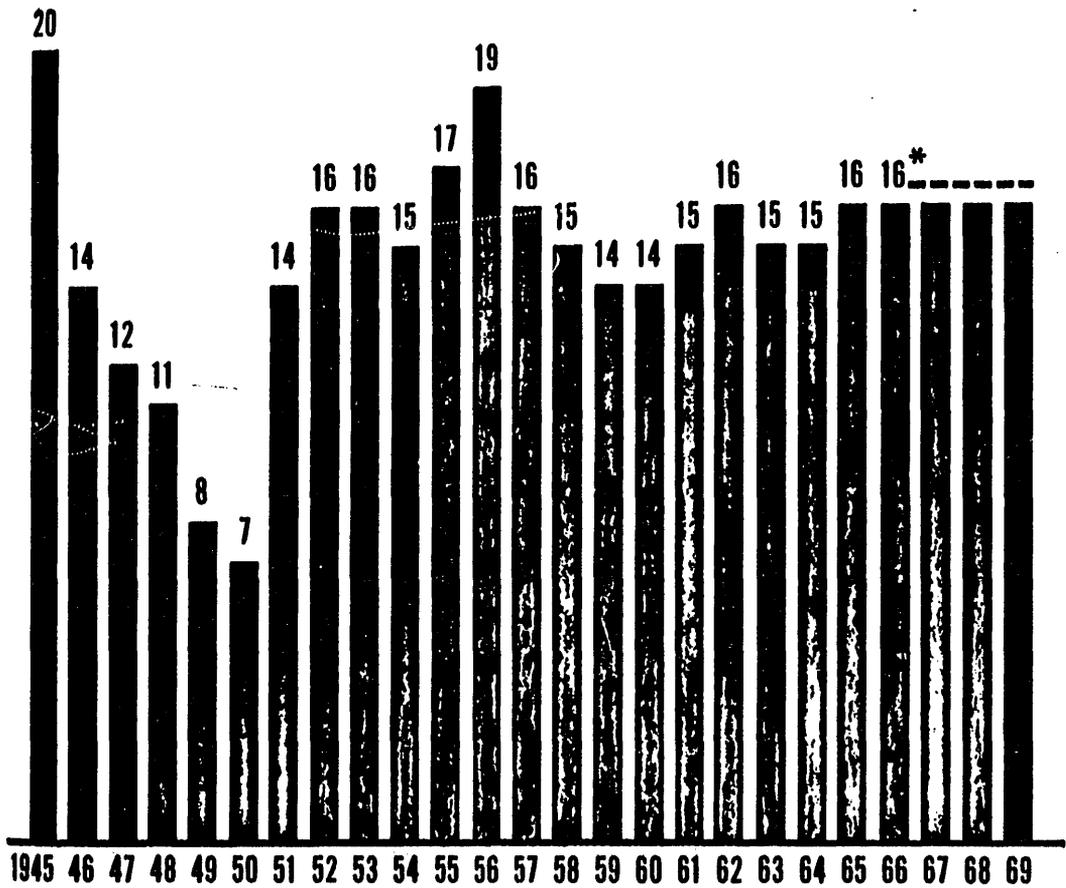
A. Yes. The NIMITZ class carriers would be required even if the attack carrier force level were reduced. The improved capabilities of the NIMITZ class carriers would become even more vital if the Navy were required to operate a smaller carrier force, since the smaller the force, the more important it would become for each carrier to have the most capability achievable.

If a reduction in force level becomes necessary, it should be accomplished by retiring older carriers in the fleet, not by cancelling new construction ships; six of the Navy's fifteen attack carriers were launched during or shortly after World War II.

The Navy's carrier force must have a regular input of new ships, both to upgrade the capability of the force through the infusion of modern technology, and to replace older ships which can no longer meet the requirements demanded of an attack carrier because of design limitations and the fact that old ships simply wear out.

Within a fifteen carrier force level, for example, the construction of a new carrier every other year means that attack carriers will reach an age of thirty years before they are replaced - the nominal maximum useful life of a carrier. Even with a force level as low as 12, it would be necessary to build a new carrier every 2½ years to replace the carriers when they become thirty years old.

THE NAVY'S ATTACK CARRIERS
ACTIVE FLEET INVENTORY AS OF
30 JUNE EACH YEAR



* INCLUDES ONE ANTI-SUBMARINE CARRIER (CVS) IN ATTACK CARRIER (CVA) ROLE FOR DURATION OF VIETNAM CONFLICT

NUCLEAR PROPULSION

Q. What are the advantages of nuclear propulsion for the attack carrier?

A. The principal advantages afforded by nuclear propulsion in surface warships derive from the ability to steam at high speed for unlimited distances without refueling. In the carrier, there are important additional benefits. Because the nuclear carrier does not have to carry black oil for propulsion, there is more room in the ship's hull for aviation fuel and other combat consumables. This gives the nuclear carrier greatly increased combat staying power compared to its conventional counterpart.

These two qualities give the nuclear carrier a capability unmatched by any other tactical air system. This is the ability to:

- Respond immediately to a contingency beyond the range of emplaced U.S. forces without waiting for supporting units or the repositioning of logistic support.

- Conduct combat operations while approaching the objective area.

- Continue combat operations without support or replenishment for the period of time required to establish sea-based logistic support lines.

An all-nuclear carrier task force can steam at high speed to any point on the oceans of the world and conduct maximum sustained air operations for many days entirely without logistic support. An all-nuclear carrier task force also has the capability to transit at high speed to and from distant and less vulnerable sources of ammunition, aviation fuel, and other supplies needed to continue in action.

As the number of nuclear submarines and air striking capabilities of our potential enemies increase, the difficulty of providing logistic support when supply lines to our combat forces are under attack will increase. A principal reason for developing nuclear power for surface warships is to reduce the logistic support required for our fighting forces.

Q. Can we convert our present attack carriers to nuclear power?

A. It is technically possible, but not practical or economical. It would cost about as much to put nuclear power in an older carrier as it would to build a new one. The new one, of course, would be far more effective, and have a longer lifetime.

NIMITZ CLASS

Q. What is the Department of Defense program for building NIMITZ class attack carriers?

A. In 1966, the Secretary of Defense approved the construction of three nuclear powered attack carriers for the U.S. Navy, called the NIMITZ class. This Department of Defense carrier building program was decided on the basis of analytical studies which projected a continuing need for sea-based tactical air.

Since this initial Department of Defense approval in 1966, the continuing military requirement for carriers has been further demonstrated by the carrier operations in Southeast Asia, which have again shown the capability and inherent mobility of sea-based striking forces. Trends in international affairs have reinforced the soundness of the decision to maintain a modern carrier force and to retain the ability to operate in those areas of the world where bases are denied or not available.

The three ships of the NIMITZ class are planned to replace the last of the aging World War II ESSEX class ships still serving as attack carriers. In order to acquire these programmed carriers at least cost, all three ships are to be of the same design, procured in series production from a single shipbuilder. The success of this plan depends upon the availability of funds in accordance with the program schedule. The continuity of component and ship production lines is essential to avoid major cost increases. Delay or deferment of scheduled funds would result in increased component costs and result in ship construction delays which are in themselves costly.

Q. Does the design of the NIMITZ class provide a substantial improvement in attack carrier capability?

A. Yes. The design of the NIMITZ improves upon the designs of preceding attack carriers as the result of analytical studies, technological advances and lessons learned from the combat experience of carrier operations in Southeast Asia.

An important difference between the NIMITZ design and that of the ENTERPRISE is that the NIMITZ will have a two-reactor plant instead of the eight-reactor plant on our only previous nuclear carrier. Technology has permitted advances in nuclear reactor core construction which are most significant. The initial cores in the ENTERPRISE provided propulsion for three years before replacement was necessary. In the NIMITZ, the initial cores will furnish energy to propel the ship for thirteen years. Also, the two-reactor plant will require fewer operating personnel.

The Navy has incorporated into the NIMITZ design many lessons learned in carrier operations in Southeast Asia. Carriers in the South China Sea have operated at a tempo never foreseen for these ships. Day, night, and all-weather operations have become routine, and sortie rates have

NIMITZ CLASS

risen. Carrier systems and crews have been operated near their limits, beyond what was considered maximum a few years ago. This combat experience has taught much about ways to improve these ships, and these are reflected in the NIMITZ design, particularly in the areas of command and control, intelligence processing, ordnance handling, fire fighting and damage control.

The NIMITZ is being designed to carry 50 percent more aircraft ordnance and more aircraft fuel than any previous attack carrier, which combined with nuclear power will greatly increase its capability for sustained combat operations.

Q. What is the status of the NIMITZ class construction program?

A. The NIMITZ, CVAN-68, first of three attack carriers of the class in the approved Department of Defense program, was authorized in fiscal year 1967. It is fully funded. The keel was laid June 22, 1968, and construction is about 20 percent complete. It is scheduled to be delivered to the fleet in 1972.

The second ship, CVAN-69, was originally planned for authorization in 1969. Congress appropriated \$50.5 million in fiscal year 1968 for long lead time nuclear propulsion plant components. However, only \$82.4 million in additional long lead time funding was requested in fiscal year 1969 to minimize the new obligational authority in that year, and the balance of \$377.1 million was slipped to fiscal year 1970. Therefore, contracts amounting to \$132.9 million have been placed for the CVAN-69, and \$377.1 million is needed in fiscal year 1970 to complete the ship. The nuclear propulsion plant for the CVAN-69 is currently being manufactured and the ship is scheduled for delivery in 1974.

The third ship is planned for full funding in fiscal year 1971. The original Navy request for long lead time funding for nuclear propulsion plant components in fiscal year 1970 was deleted in the budget review process. If this funding is not restored in the fiscal year 1970 appropriation, the ship will be delayed a minimum of one year past the 1976 date originally planned for delivery, and the cost of the ship will increase.

Q. What would be the impact of deferral of funding for the CVAN-69?

A. Deferral of the funding required this year to continue procurement of the CVAN-69 would have the following undesirable effects:

- A delay in ship completion which would hinder necessary improvement in the combat capability of the carrier inventory and considerably delay the increased availability of nuclear propulsion in the fleet. As presently

NIMITZ CLASS

planned, CVAN-69 will join the fleet in 1974 to replace the BON HOMME RICHARD - a veteran of World War II, Korea, and Vietnam.

- An increase in the cost of CVAN-69 due to inflationary effect; the inability to take advantage of multiple procurement with the CVAN-68; and a break in the learning curve achieved by series production, because of the gap which would occur between the CVAN-68 and the CVAN-69.

- A disruption of the production continuity of the CVAN program which would cause additional delay and further cost escalation. Because of the large number of existing orders in the heavy equipment industries, they are not willing to make long range commitments without firm contracts. Consequently, price and delivery of components not covered by firm contracts are subject to considerable escalation and delay.

The \$132.9 million appropriated for the CVAN-69 in the last two years is already obligated in contracts, and manufacture of components is proceeding. If the unexpended balance of these funds were deferred, cancellation of contracts and disruption of component production lines would result. Since most of these contracts are for nuclear propulsion plant components, their termination would have a severe impact on the industrial base for the overall naval nuclear propulsion program.



UNITED STATES
 ATOMIC ENERGY COMMISSION
 WASHINGTON, D.C. 20545

September 29, 1969

Honorable L. Mendel Rivers, Chairman
 House Armed Services Committee
 House of Representatives

Dear Mr. Rivers:

This letter is in response to your request of September 24th that I give you my views concerning the urgency of proceeding this year with the high speed nuclear attack submarine program, the NIMITZ Class attack aircraft carrier program, and the nuclear-powered guided-missile frigate program, at the level provided in the fiscal year 1970 Defense Authorization Bill reported out by the House Armed Services Committee.

I am grateful for this opportunity to make clear my reasons for endorsing the initiative and leadership taken by your committee on these important programs. They are the foundation of the future nuclear-powered Navy for which you have worked so long and so hard--the modern Navy the United States needs to retain its position as a world power of the first rank.

If history teaches anything it is surely that weakness invites attack; that it takes but one aggressor to plunge the world into war against the wishes of dozens of peace-loving nations if the former is militarily strong and the latter are not. Yet there are those who deprecate the need to maintain military supremacy or even mere parity with the Communist empires on the grounds that other nations have accepted a decline from first to second or third rank and that we ourselves for most of our history were militarily a second-rate power, yet secure within our borders. They forget that we then profited from the Pax Britannica, even as the former great powers of Europe who have lost their defense capability enjoy political freedom today only because we are strong enough to defend them and ready to do so. What it means to be weak and without American protection should be evident to all as we observe the tragic drama of Czechoslovakia "negotiating" with Russia the continuing subjugation of her people.

Mr. Rivers

In modern war, particularly the kinds of war we envisage for the future, more military equipment and relatively fewer men will be used. We can no longer fight with rifles, cannon and mortars alone -- all of which can be manufactured quickly and in numbers. Today's weapons -- ours and those of our potential enemies -- are complex and costly; it takes many years to develop and build them. Even in World War II we did not place into action a single airplane that had not been under design when we entered the war.

Although we lack the data for a precise comparison of U.S. and Soviet military expenditures, it is clear that the U.S.S.R. spends much more annually for new weapons than the United States. Is it then reasonable for us to fail to modernize our defenses on the assumption that the danger of war no longer exists? The first priority of all life is survival; this is likewise true of nations, and it is the primary function of a legislature. World War II probably would not have broken out and followed the course it did had the United States not been almost totally disarmed in the 1930's as a result of decisions made in the years before, the Kellogg Pact then serving as the chief argument that there was no longer any danger of war.

To illustrate the danger of underestimating the war capacity of a potential enemy, let me remind you that when Germany decided to invade Russia in 1941 their staff studies showed that the Soviet Union would be defeated in eight weeks, ten weeks at most. Our military attache' in Moscow advised the War Department that the war would be over in three months. I can also still remember that when World War I broke out, the Germans expected it would be over in three months.

These are facts that should put us on guard against the argument that long worldwide wars are no longer possible. Even the present "minor" Vietnamese War has endured for longer than our foremost civilian and military leaders predicted. Having been in the Navy in both World Wars, I may perhaps be forgiven for not being as optimistic about permanent peace, the beneficence of unilateral disarmament, and the current belief held by many -- especially our "intellectuals" -- that the sheer horror of war will be an effective deterrent.

Preventing war is infinitely less costly than engaging in it. The money we save today in reducing our military capacity will surely be but a pittance compared to what it will cost us if our very weakness tempts others to plunge us into war.

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Unfortunately, few people study history which accounts for the truism that history repeats itself. Not many of our people fully understand the devastation wrought by World War II. That war ended a quarter of a century ago. Half the people in the United States were not even alive then; many more were children or teenagers. It is not too far-fetched to say that 75 percent have no vivid personal memory of what a world war really means.

Our country is able to stay ahead in defense only because of our technology. If we do not take advantage of this technology we will have to fight with inadequate weapons and suffer higher casualties. Congress, for as long as I can remember, has done everything within its power to provide our military with the best weapons and with services that would reduce loss of life. I believe our people are willing to pay the taxes necessary to provide our men the best weapons our technology makes possible.

The United States is essentially an island between two oceans -- an island dependent for its survival on free use of the seas. The Atlantic and Pacific, once our shield and protection, are now broad highways for launching attacks against us over, on, and beneath the seas.

The United States, being an island, has no contiguous land masses whence we can conduct military operations to protect our national interests or from which we can obtain the fuels and materials necessary to sustain a large scale war effort. The sheer bulk of the daily requirement of petroleum products for military and industrial needs precludes adequate peacetime stockpiling. We have once again been taught by the war in Vietnam, as so often in the past, that we must have free access to the seas. In spite of the publicity given to the airlifting of supplies to Southeast Asia, over 98 percent has been transported by ship, half the tonnage being petroleum products.

Given our island position, we can project our national power beyond our territory only through the Navy, depending -- except for all-out nuclear war-- primarily on our nuclear attack submarines and on our attack carrier striking forces.

Some argue that the danger of war has been reduced; consequently, we should no longer construct nuclear attack submarines, NIMITZ Class carriers and nuclear frigates, devoting our resources instead to other, more desirable objectives. Granted the hideousness of modern war, can we deduce therefrom that mankind is now wise enough to forego recourse to arms? A glance at history should put us on guard against facile claims that humanity has now reached a state where the possibility of armed aggression can safely be disregarded in formulating national policy.

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President John F. Kennedy said, "If there is any lesson of the 20th century, and especially of the past few years, it is that in spite of the advances in space and air...this country must still move easily and safely across the seas of the world."

In order to maintain free use of the seas, we must be able to counter any foreseeable threat at sea. As is extensively documented in your committee's reports on the status of naval ships, the United States has an aging Navy whereas the Soviets are rapidly building a modern Navy. The Soviets are embarked on a program which reveals a singular awareness of the importance of seapower and an unmistakable resolve to become the most powerful maritime force in the world. They demonstrate a thorough understanding of the basic elements of seapower: knowledge of the seas, a strong modern merchant marine, and a powerful new navy. They are surging forward with a naval and maritime program that is a technological marvel.

The Soviet Navy has undergone a continuing modernization program including the building of missile-armed cruisers and destroyers, helicopter carriers and several new classes of nuclear and conventional submarines. As a result, their Navy has become a fleet capable of sustained open ocean operations. For the first time in her history, the Soviet Union is using a deployed naval force in support of foreign policy in areas not contiguous to its borders. Their force in the Mediterranean includes warships armed with surface-to-surface and surface-to-air missiles, amphibious ships with naval infantry embarked, as well as attack and missile submarines.

The Soviet submarine force constitutes a threat against the continental United States, U.S. Naval forces, and our unrestricted use of the seas. Several classes of Soviet submarines, both conventional and nuclear powered, carry cruise missiles which have a maximum range of about 400 miles. It is believed that the primary mission of these submarines is to counter U.S. carrier strike forces. The Soviets have a new submarine force of about 375. By the end of this year the United States will have in commission 145 submarines, which includes 59 diesel submarines, most of which are of World War II vintage. By the end of next year, it is estimated that the Soviets will have a numerical lead in nuclear submarines.

To achieve this the Soviets have greatly expanded and modernized their submarine building facilities. Just one of their numerous submarine building yards has several times the area and facilities of all U.S. submarine yards. They use modern assembly-line techniques under covered ways, permitting large-scale production regardless of weather conditions.

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In the single year 1968, the Soviets put to sea a new type ballistic missile submarine as well as several new types of nuclear attack submarines -- a feat far exceeding anything we have ever done. In looking to the future, it is estimated that by 1974 they will add about 70 nuclear-powered submarines to their fleet, whereas we will add but one-third as many -- further increasing their numerical superiority. In the case of the ballistic missile submarine the Soviets have undertaken a vigorous building program to surpass our Polaris fleet of 41. They have completed at least 7 of their new Polaris-type submarines, and have the capability to turn out about one a month. We have no Polaris submarines under construction or planned. We must assume that by the 1973-74 time period they will be up to us.

Numerical superiority, however, does not tell the whole story. Weapon systems, speed, depth, detection devices, quietness of operation, and crew performance all make a significant contribution to the effectiveness of a submarine force. From what we have been able to learn during the past year, the Soviets have attained equality in a number of these characteristics and superiority in some.

Their progress over the past few years in nuclear submarine design, construction, and operation could only have been accomplished through the efforts of a large group of highly competent technical people. We must assume the talents and efforts of this group will continue to provide them with additional advances in nuclear submarines.

The steady build-up of the Soviet submarine Navy from an ineffective coastal defense force at the end of World War II to the world's largest underseas navy today deserves admiration; also it should deeply worry every American. By the end of this year we face the prospect of losing the superiority in nuclear submarines we have held for many years. The threat posed by their submarine force -- with their new ballistic and cruise missile launchers and new attack types, is formidable. If more sophisticated types are added in the near future, as is probable considering their large number of designers and their extensive facilities, the threat will rapidly increase.

Soviet tactical air efforts have also resulted in significant gains in their capability. Between 1952 and 1967, the Soviets have built some 20 different fighter prototype aircraft. At least eight new designs have appeared since 1961. Since the F-4 Phantom II became operational in 1961, we have not introduced any new operational fighter aircraft.

To achieve the results so far attained in all areas of modern technology, the Soviets had to develop their most important resource -- technical and scientific personnel. Their educational program enjoys highest national

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priority. The statistics on the total number of degree graduates are impressive. The U.S. National Science Foundation data indicates that in 1966 alone, 168,000 engineers were graduated; the United States, on the other hand, produced but 36,000. With specific application to their Navy, the Leningrad Shipbuilding Institute, just one of several naval institutes, had over 7,000 students in 1966 studying naval architecture and marine engineering. I doubt we had over 400 enrolled in these subjects in all U.S. colleges.

While we cannot specifically count the number of Soviet scientists and engineers devoted to naval work, it is apparent that they have created a broad technological base; they have committed extensive resources to support development of their naval forces.

The Soviets have frequently announced their intent to be the pre-eminent world power. Why do we not believe them? Hitler in Mein Kampf plainly announced his intent to dominate the world. We did not believe him either -- until it was nearly too late. Admiral Gorshkov, Commander in Chief of the Soviet Navy, said recently: "The flag of the Soviet Navy now flies proudly over the oceans of the world. Sooner or later, the United States will have to understand that it no longer has mastery of the seas." And just a few months ago the Russians announced a projected 50 percent increase in the size of their merchant fleet.

While the Russians have been taking giant strides, we are being held back by those who argue that we must do nothing to undermine their confidence in us, that we must not jeopardize the possibility of disarmament by escalating the armaments race, no matter how rapidly they are moving ahead in their own preparations.

These facts should be weighed when assessing the judgment of those who argue for a reduction of American naval power while Soviet naval power is rapidly expanding.

Let me now address each of the three nuclear-powered warship building programs you have asked me about and explain why I think each is vital to give us the capability to meet the rapidly expanding Soviet naval threat.

High Speed Nuclear Attack Submarine Program

Earlier this year I testified at length to the Joint Committee on Atomic Energy concerning the urgency of proceeding as rapidly as possible with the High Speed Nuclear Attack Submarine Program. The Joint Committee,

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in their foreword to the hearing record on the "Naval Nuclear Propulsion Program -- 1969" stated:

"Last year Congress appropriated funds to start work on a new design high-speed submarine.... After a great deal of discussion, including several congressional hearings, Secretary Clifford announced on July 1, 1968 that the Department of Defense would proceed with the high-speed submarine class (SSN688 Class).

It is clear that the Soviets have made their nuclear submarine construction program a matter of high national priority. In contrast, the Department of Defense in the last several years has delayed new submarine programs and has approved fewer submarines than recommended by the Joint Chiefs of Staff.

The rapidly increasing Soviet naval threat...makes it essential that the United States get submarines of the new high-speed class into the fleet as soon as possible. The earliest practicable delivery of ships of this class requires authorization to award shipbuilding contracts for the first three submarines in fiscal year 1970 and procurement of long leadtime items for the next five be started in fiscal year 1970. Therefore, the Navy's request for the fiscal year 1970 shipbuilding program included three high-speed submarines fully funded and long-lead funds for five more.

Because of the urgency of delivering these new ships to the fleet, the Joint Committee strongly recommends that the fiscal year 1970 nuclear warship construction program include as a minimum the funds necessary to award contracts for the first three high-speed submarines and advance funding for five more.

Historically, the development of nuclear propulsion has been accomplished largely through the efforts and insistence of the Congress. As recently as last year, while the Department of Defense debated and vacillated over whether to initiate development of a high-speed submarine and to proceed with the quiet electric drive submarine program, the Congress acted -- affirmatively. The Defense Department belatedly but finally recognized the vital importance of these programs and is now supporting them. However, had it not been for the initiative of the Congress in authorizing and appropriating funds for the high-speed submarine program the Defense Department would not be in a position to proceed with it now. Similar affirmative congressional action is called for now to insure against any slowdown in the development of advanced nuclear propulsion plants -- a slowdown that could have a significant adverse impact on our future submarine program."

Mr. Rivers

I hope the Congress will approve the recommendation of your committee to provide in fiscal year 1970 full funding for three new design high speed submarines and funds for procurement of long leadtime nuclear propulsion plant components for five more. This is the same high speed nuclear attack submarine building program initially recommended by the Navy, recommended by the Joint Committee on Atomic Energy, and included in the fiscal year 1970 Defense Authorization Bill passed by the Senate.

NIMITZ Class Attack Carrier Program

For many years I have testified that because of the vast improvements being made in weapons technology the Navy should wherever possible go underwater to carry out its missions. The most striking example of where this has been accomplished in the past decade is the transfer of the Navy nuclear war deterrent mission from bombers based on aircraft carriers to Polaris missiles launched from nuclear submarines. Increased emphasis has also been placed on nuclear-powered attack submarines for anti-submarine missions -- a policy that should be continued.

There are, however, some important Navy missions which cannot, in any known practical way, be carried out by submarines. One of these is the provision of sea-based tactical airpower to protect our sea lanes and our air lanes over the seas, as well as to support amphibious operations and overseas military land operations beyond the range of the land-based tactical air power available to us.

In a memorandum of 25 August 1969 to the Secretary of the Navy, the Chief of Naval Operations discusses the urgent need to continue building attack carriers. The memorandum, a copy of which is enclosed, responds to questions raised this year by those opposed to proceeding with the carrier building program. I contributed to the preparation of Admiral Moorer's memorandum and I agree with its contents.

Each year for the past 4 years the Secretaries of Defense have presented to the Congress the Department of Defense plan to build three new two-reactor nuclear-powered attack carriers of the NIMITZ Class in alternate years starting in fiscal year 1967. These three carriers, the CVAN68, CVAN69, and CVAN70, are scheduled to replace World War II ESSEX Class carriers, which by that time will be from 26 to 30 years of age and will then continue in service as anti-submarine warfare carriers, if needed.

The NIMITZ, CVAN68, was authorized and funded in fiscal year 1967. The ship is under construction at the Newport News Shipbuilding and Dry Dock Company, Newport News, Virginia; the keel was laid over a year ago.

Mr. Rivers

Congress authorized and appropriated \$50.5 million in fiscal year 1968 for procurement of long leadtime nuclear propulsion plant components for the second NIMITZ Class carrier, the CVAN69. The remainder of the funding for this ship was originally scheduled for fiscal year 1969. However, in order to reduce the new obligational authority in fiscal year 1969 to a minimum, the Department of Defense and the Congress included only \$82.4 million more in fiscal year 1969 which was enough to keep the CVAN69 on schedule. The remaining \$377.1 million needed to complete the funding of the ship was slipped to the fiscal year 1970 budget request now before the Congress.

The propulsion plant machinery for the CVAN69 is well along in fabrication. The remaining funds for the CVAN69, which are included in the fiscal year 1970 budget request, must be made available in fiscal year 1970 if the ship is to stay on schedule and major increase in cost is to be avoided.

Both Secretary McNamara and Secretary Clifford approved including the third NIMITZ Class carrier, the CVAN70, in the fiscal year 1971 program. In a letter to the Chairman of the Senate Armed Services Committee dated August 16, 1969, Secretary of Defense Laird reconfirmed that the third NIMITZ Class carrier, the CVAN70, is still planned for fiscal year 1971.

The Navy recommended that advance procurement funds be provided in the fiscal year 1970 budget for procurement of long leadtime nuclear propulsion plant components to prevent delivery of the CVAN70 from being delayed. These components are the most limiting carrier components.

If the Navy is provided \$100 million in fiscal year 1970 for procurement of long leadtime nuclear propulsion plant items for CVAN70, as recommended by your committee, it is expected that less than \$10 million would not be recoverable should Congress decide next year not to go ahead with the CVAN70 based on the results of the Congressional study of attack carriers directed by the Senate amendment to the fiscal year 1970 Defense Authorization Bill. If the long lead funds for the CVAN70 are not provided in fiscal year 1970, the ship will be delayed about a year and its cost will be significantly increased due to the break in the planned production schedule for the three NIMITZ Class carriers.

I do not believe further study of the attack carrier issue will change the basic facts I summarize below. These, in my opinion, establish the need to proceed with construction of the three NIMITZ Class carriers. These facts are discussed in more detail in the attached memorandum:

- Three-fourths of the earth's surface is covered by water; 95 percent of the world's population live within range of carrier aircraft.
- No valid plan exists for overseas military operations by the Army, the Air Force, or by amphibious forces, which does not depend on our ability to guarantee free use of the seas.

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- Without a modern attack carrier force, the United States is not assured free use of the seas in those areas of the world that are important to us. It is simply not practicable to establish enough land air bases adequately prepared, provisioned, defended, and within range of potential areas of conflict.
- To match the continually improving capabilities of our potential enemies, the Navy's carrier force must have a steady input of new ships. This is necessary to upgrade its capability through infusion of modern technology and to replace ships no longer capable of meeting the demands on them -- whether because of their inherent design limitations or because of their age.
- Seven of the sixteen carriers currently operating in the attack carrier role were launched during or shortly after World War II. Five of these cannot operate several of the modern aircraft types now in the fleet. They will not be able to operate air wings which can survive against Soviet weapons technology of the 1970's.
- Each NIMITZ Class carrier will carry 50 percent more aircraft ammunition and twice as much aircraft fuel as the latest conventionally powered attack carrier. This, combined with the unlimited high speed endurance provided by nuclear power will greatly increase their capability for sustained combat operations.
- The NIMITZ Class will incorporate improved design features in the areas of command and control, intelligence processing, ammunition handling, aircraft catapulting, fire fighting and damage control.
- The NIMITZ Class will be the best protected and least vulnerable carriers ever designed. The added protection is provided by extensive use of armor against bombs and guided missiles, as well as by improved anti-torpedo hull design. The unlimited endurance at high speed and freedom from the need to slow down to refuel provided by nuclear propulsion further reduce the carrier's vulnerability.
- The second ship of this class, the CVAN69, is scheduled for delivery in 1974. It will replace the BON HOMME RICHARD which will then be a 30 year old veteran of World War II, Korea, and Vietnam.
- The third ship of this class, the CVAN70, is scheduled for delivery in 1976. It will replace the ORISKANY, launched in 1945.
- If future analysis or budget stringency should require reduction in the attack carrier force level, this should be accomplished by retiring old carriers, not by cancelling construction of new ones.

Mr. Rivers

- Were the Navy required to operate a smaller carrier force, the improved capabilities of the NIMITZ Class would become even more important. The smaller the force, the more important it is that each carrier have the greatest achievable capability.
- The maximum life of an attack carrier is 25 to 30 years. A 15 carrier force level requires construction of one new carrier every 2 years if they are to be replaced when they are 30 years old. If the force level were to be reduced to 12, it would be necessary to build a new carrier every 2.5 years.
- The three NIMITZ Class attack carriers are the only ones authorized or planned from fiscal year 1964 through 1972, a period of 9 years; this will average out to but one new attack carrier every 3 years.
- If the attack carrier force level were reduced, for example to as few as 12, the CVAN69 would then replace the then 27 year old CORAL SEA; the CVAN70 would replace the then 31 year old MIDWAY.
- If we do not continuously modernize our attack carrier force, its ability to protect our naval and overseas military forces and the logistic lifeline for our military and industrial needs against the increasing capabilities of potential enemies will be degraded.
- To build and equip a modern aircraft carrier takes 5 years. If we do not have enough of them when war erupts, it will be too late -- no matter what effort and money we may then be willing to expend.

For these reasons I recommend that Congress this year approve construction of the second NIMITZ Class carrier, the CVAN69, and make available advance procurement funds for long leadtime nuclear propulsion plant components for the CVAN70.

DXGN Guided-Missile Frigate Program

Additional frigates with guided-missile anti-air warfare systems and anti-submarine capability are required to provide air and submarine defense for the Fleet.

For both independent duty and task group operations, nuclear power in frigates gives the capability of steaming great distances at high sustained speeds. It permits the commander to position his ships with much more flexibility, since they are not dependent on oiler support. It also gives him more flexibility in his choice of actions because here again he does not have to concern himself with the problem of sooner or later having to join up with an oiler.

Mr. Rivers

The overall capabilities of a nuclear carrier task force are improved each time a nuclear-powered guided missile frigate is substituted for a conventional guided-missile ship. The incremental gain in military effectiveness is larger as each nuclear frigate is substituted with the largest increment being added when the all-nuclear task group is achieved.

We now have three nuclear-powered, guided-missile ships in the Fleet -- the cruiser LONG BEACH (CGN9) and the frigates BAINBRIDGE (DLGN25) and TRUXTON (DLGN35). Two more frigates -- the DLGN36 and DLGN37 -- are now under construction.

Last year the President agreed with a Department of Defense proposal to build four more nuclear-powered, guided-missile ships of a new class called DXGNs -- two in fiscal year 1970 and two more in fiscal year 1971. Funds were appropriated in fiscal year 1969 for procurement of long lead items for the first two of these ships; contracts for these components have been awarded.

This year the Department of Defense and the Navy concluded that the original schedules for the first four DXGNs would not be delayed if only one DXGN were fully funded in the fiscal year 1970 program, provided additional long lead components for the second DXGN and long lead components for the third and fourth DXGNs were also ordered this year.

The Navy has recommended expanding the building program for nuclear-powered, guided-missile frigates. Even if all the nuclear frigates recommended by the Navy are built, only 10 percent of the destroyer-type ships in the Fleet of 1980 will have nuclear propulsion. Thus, it is clear that the Navy is recommending a relatively modest rate of changing the destroyer forces to nuclear power.

By following the Department of Defense plan to build the nuclear frigates DLGN36 and DLGN37 now under contract, and following these with but four ships of the new DXGN Class, the ENTERPRISE will have been in operation 11 years and the NIMITZ 4 years before they will have a full complement of nuclear-powered missile ships to accompany them. By that time, the CVAN69 and the CVAN70 will also have been delivered to the Fleet with no nuclear frigates available for them.

The rate of authorization of nuclear frigates must soon be increased to three or four per year if the Navy is to come close to meeting the goal for nuclear-powered missile ships in the Fleet of the 1980's. At the rate of one per year, it will be almost the year 2000 before this goal is reached.

Mr. Rivers

The provision in the fiscal year 1970 House Defense Authorization Bill for procurement of long leadtime components for three guided-missile frigates in lieu of the long leadtime funds for the two requested by the Department of Defense is a significant step forward. I hope that the Congress will approve these funds recommended by your committee.

The area of the world covered by our overseas land base system has been shrinking. Pressure continues at home and abroad to withdraw our deployed forces. As we approach the "Fortress America" situation there is a growing need for nuclear-powered attack carrier task forces capable of steaming at high speed to any point on the oceans of the world, and of conducting maximum sustained air operations for many days entirely without logistic support -- a capability that can be obtained only by continuing to build nuclear-powered warships.

I would like to add a comment concerning the vulnerability of carrier task forces. Everything is vulnerable in war -- including carrier task forces. But it must be thoroughly understood that the United States cannot conduct overseas military operations without naval support for the simple reason that 98 percent of our supplies must be transported by ship.

Those who cite the vulnerability of naval task forces appear to believe we would be able to transport men and supplies without the protection afforded by our aircraft carriers. They seem to have arrived at this conclusion on the basis of a naive belief that, if we did not have carriers, the enemy would permit our cargo shipping and transports to proceed unmolested. These are arguments based on wishful and illogical thinking. If there is a possibility that we may become engaged in an overseas war -- and our foreign commitments imply this -- then there is no viable way we can use our Army or our Air Force unless we are able to protect the ships which transport supplies to them.

Another point made by opponents of our aircraft carriers is that their very existence creates the desire to use them -- thus making it easy for us to engage in military ventures.

The notion that a "weapons race" causes war was once a widely-held theory, but many historical studies of the causes of World Wars I and II disprove it. Certainly it cannot be claimed that World War II was caused by an armaments race. In fact that war might well have been prevented had Britain, France, and the United States been better prepared. It was for this very reason that at the end of World Wars I and II we vowed never again to be caught unprepared. Whether or not to use our military forces is decided by our civilian leaders, not by the military. The military is asked for advice; the decision is that of the civilian leadership.

Mr. Rivers

The Navy's strength lies in its ability to be deployed rapidly at distances from the United States. Its very existence as a "fleet in being" serves to deter those who might otherwise think lightly about starting hostilities. It is no threat to any country that does not itself attack us.

Nuclear submarines, aircraft carriers, and frigates are expensive, as are all modern weapons. But delay in their procurement will only serve to further increase their cost.

In summary, Mr. Chairman, I agree with the position taken by your committee that the fiscal year 1970 Defense Authorization should include:

- Three high speed nuclear attack submarines, with \$110 million for procurement of long leadtime nuclear propulsion plant components for 5 more;
- Completion of funding for the CVAN69, and \$100 million for procurement of long leadtime nuclear propulsion plant components for the CVAN70;
- Completion of the funding for one nuclear-powered, guided-missile frigate with \$100 million for procurement of long leadtime components for 3 more.

I sincerely hope that the Congress will approve these recommendations of your committee.

Respectfully,



H. G. Rickover

Enclosure:
Chief of Naval Operations Memorandum
for the Secretary of the Navy
dated 25 August 1969

cc: Secretary of Defense

SOLVING THE COUNTRY'S DOMESTIC PROBLEMS

Mr. MAHON. Let me ask a question I mentioned informally earlier. People are saying now that if we can go to the moon, if we can place a team on the moon and bring them back safely, we can do anything.

Another part of that conclusion is that the people involved in the space program can build a perfect instrument, make a perfect landing on the moon, make a perfect departure, make a perfect splashdown on earth, and so forth, but in the case of defense weapons we are confronted with huge cost overruns, innumerable defects, all manner of trouble. Do you get the thrust of what I am saying?

Admiral RICKOVER. I understand fully.

Mr. MAHON. This is what is being said.

Then some of these same people are saying that to solve the problems of poverty, hunger, disease, the problems of the inner city, all you have to do is to spend the money and turn it over to somebody as competent as the people in the Space Agency. I would like to have your philosophical views of that subject.

Admiral RICKOVER. First, you must bear in mind that the process of defining how our cities are to be renewed is often carried out by vested interests in government agencies and outside groups. I think the broader aspect of what you are saying, the more important aspect, is why can't we use the same techniques that are used in the space program to solve human problems. The answer in my opinion is simple. In one case you deal with machines and you have only the scientific laws of nature opposing you. In the other case you are dealing with humans and you have all the conflicting and irrational forces that motivate people to oppose you.

It must be kept in mind that ours is a society in which there are political, ethnic, and religious differences—some of which are passionately held and have led to violence.

When we make a national decision to land a man on the moon no people on earth or on the moon are trying to stop us, the moon is empty. Once the decision is made the problem becomes one of learning how to build the right machines, and how to select and train the people who will operate them.

When a machine breaks down, the cause can be discovered; in fact, the cause must be capable of being discovered or we are not dealing with a machine. So the pleasure of working with machines is that malfunctions are correctable. Within the limits of the laws of nature satisfaction is guaranteed if only enough reason, intelligence, knowledge, and work are applied. It is otherwise when we deal with human problems where religion, politics, fear, ignorance, belief, tradition, avarice, complacency, hunger, disease, stupidity, emotion, and prejudice often hopelessly complicate what seem to be the simplest and most desirable undertakings.

Let me make a comparison. I believe the estimate has been made that it would take \$100 billion to fix up New York City. In my opinion it would take several times that amount.

All right. Let us assume now that this committee says: "Fine it is worth the price; we will appropriate this sum."

Obviously we will not be able to evacuate at one time the 10 million inhabitants of New York City while we reconstruct it. The most reasonable person would say is, "We will take a couple of square miles at a time."

Let us see what we then face. Now you have to start dealing with people.

The first thing you have to do is find localities for the displaced people to live. You will have to take them out of New York City. You will have to take them out of their jobs, away from familiar surroundings and put them into a new community. You will have to find new places for the factories being torn down. You will have the most complex politics in such a move. You will have to consult individual Congressmen and Senators, lobbyists, vested interests. You will have all kinds of conflicting interests in the new communities and in the old one, as well as in the communities surrounding both. Remember the upheaval in New Haven and in other communities when small projects of a similar type were undertaken.

The minute you start impinging on human beings you have an entirely different problem than when you deal with machines. That is why the idea is unrealistic that the think tanks and the Space Agency could readily solve our social ills.

The space people—as well as my own people—have been dealing in an area where there is no human opposition. A national decision is made to go to the moon or to build an aircraft carrier. After you decide to build the space vehicle or the aircraft carrier people may be opposed to them in principle but no group is getting hurt by them. No one is being adversely affected. In fact, you are creating many jobs. Aside from different views on how the money should be spent there is no real opposition. Problems involving human beings are of a different order.

I say this: The difference is that in one case you have no impact on the basic interests of people. In the other case you do. The moment you start having an impact on people all these fine "scientific management" rules and think-tank prognostications go out the window.

I have a deep distrust of all general formulae—the great magnificent abstractions such as that the scientific methods used to build the Apollo spacecraft can be used to rebuild our cities, solve our social problems, and so forth. Those who advocate this approach have imaginations unrefined by experience and judgment.

We should be skeptical about abstract ideas, in contrast with the concrete, short-term immediate goals of identifiable human beings.

Faith in general formulae is an unrationed attempt to escape from the uncertainties and the unpredictable values of life to the false security of our own symmetrical fantasies.

Those who speak the language of numbers and technologists never lack for reverent if bewildered public attention. The bolder the "scientific" predictions, the greater the public awe and acquiescence.

In quantification the systems analysts have found what the alchemists of old sought in vain—the universal solvent. The mathematics of such expertise slides easily "from discussion of thermonuclear weapons and space vehicles to the remaking of cities, to hospital design, or to education as something whose value is calibrated in lifetime income differentials and whose substance can be captured at 'electronicized

desks' where computers pace their attentive students through true or false and fill-in-the-blank testing."

The dilemmas of American cities are political and philosophical. This means that systems analysts trained to calculate performance/weight tradeoffs for missiles or for space ventures are ill-prepared to deal with more than the form of our cities' problems. The tools they use work best on well-defined, simple concrete models involving quantifiable concepts, measurable data, and thoroughly understood theoretical structures which adequately reflect reality.

Since almost nothing about cities, beyond perhaps the plumbing of buildings, yields such convenient samples, it is obvious that many highly visible quickie solutions currently being advocated offer only the illusion of progress.

If the job of renewing our cities needs to be done—and I for one do not know that this is feasible—there is enough evidence of our society's scientific gullibility and gadget mania for many to believe we should turn it over to NASA or to some other such high-pressure scientific agency.

The cynical activities of the systems analysts and eager-beaver industry have already pervaded our educational system from the Office of Education down to the smallest local school board. These activities had their prototype in the Defense Department where every aspect of the military is subordinated that gets in their way, including the foreign affairs area, to their quantitative and value-neuter judgments.

An eminent American logician, Prof. W. V. Quine in "From a Logical Point of View" casts doubt on the scientific method as it relates to human beings. He says.

The totality of our so-called knowledge or beliefs from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a manmade fabric which impinges on experience only along the edges. Or, to change the figure, total science is like a field of force whose boundary conditions are experience. A conflict with experience at the periphery occasions readjustments in the interior of the field.

I think that is about as clear a way as this could be said. Please understand the spirit in which I am speaking. I do not wish in any way to imply that space work is easy. I personally consider the successful landing on the moon to be a great technical achievement. But I am saying that human problems are far more complex and not nearly as amenable to solution through directed efforts.

The Space Agency is, I am sure, no different in its motivations than any other part of the executive branch. No organization will on its own initiative, say: "We have successfully completed the job you have assigned us; we now recommend you reduce our budget." No, it is the law of nearly all organizations that they wish not only to retain their present status, but also to grow. This, in my opinion, is the main reasons there are those who desire NASA to undertake problems having social connotations.

Exploration of the planets may some day not have the public acceptance it now has. Social problems will be with us forever; so it is a good, permanent area for congressional—hence financial—support.

Mr. MAHON. It is said that the Navy in building a submarine may let it sink at the dock and there is all manner of wastefulness and ineptness.

Admiral RICKOVER. You are right, sir. The recent sinking of a submarine alongside the dock is a classic example of stupidity at work. It is one of the results of the way the Navy goes about building ships. If I may, I would like to continue with the issue you raised about using NASA methods to solve social problems, because I have given much thought to this problem.

Mr. MAHON. Go ahead on that aspect.

Admiral RICKOVER. There is also this: You are able to perform well on one specific project when you can devote all your top talent to it, especially when you get all the money you need to do the job thoroughly. It is something else again to perform equally well on a large number of simultaneous and diverse projects and over a long period of time, especially when the resources available for the jobs are limited and many of the people available to you are not very bright and not too interested in working hard or in doing a good job.

The space people have done a magnificent job. But they couldn't have done it had they not attracted highly talented people who were motivated to do a first-class job and who were willing to work hard to accomplish their task. And they have had full financial backing—more than any project in all history.

Consider the case of the fire on the Apollo several years ago. I know you deal in large numbers in this committee, but do you remember how much it cost to investigate that accident and correct the faults? Do you still remember?

Mr. MAHON. The accident on the Apollo?

Admiral RICKOVER. Yes, sir. How much money do you think was spent?

Mr. MAHON. I don't recall.

Admiral RICKOVER. About \$400 million to investigate that accident, make repairs, and correct the faults. If you want to give anything in this world the priority the Apollo program had you can get high performance results. In this connection you will remember that the total R. & D. cost for the naval nuclear propulsion program over a period of more than 20 years has been \$2.2 billion. This includes cost of laboratories and five land prototype plants. By comparison the cost of the Apollo program was \$24 billion. Further, the total cost over a 20-year period to build our entire nuclear fleet consisting of 41 Polaris submarines, 68 attack submarines, 2 aircraft carriers, 4 frigates, 1 cruiser, and 1 deep submergence research vehicle has cost the Navy about \$12 billion.

SINKING OF THE GUITARRO

Mr. MAHON. Will you now tell us about the submarine that sank alongside the dock.

Admiral RICKOVER. That was due to sheer stupidity; to incompetence; to improper management of the details of complex technical work—and not in the shipyard alone.

No one ever thinks of blaming the people in Washington who have responsibility for the way our technical work is controlled and what resources are assigned to it. No one seems to realize that the awesome management and paperwork organizations they have established in Washington in recent years have decimated our technical capability.

There is a runaway inflation of paperwork. This has now become

endemic and is defeating the intended purpose. I believe that part of our difficulty at naval shipyards and elsewhere stems from unrealistic attitudes taken by headquarters right here in Washington.

It would be an enlightening experience for the officials who set up these rules to be placed in charge of a naval shipyard. They would then be able to learn, firsthand, about the many administrative difficulties that have been placed in the way of efficient management. They would find that frequent exhortations emanating from Washington to "do better" are meaningless unless those being exhorted are qualified and are given the means to "do better."

When anything good happened during the recent administration of the Department of Defense the leader got the credit. But when things went wrong it was obviously someone else's fault.

Mr. MINSHALL. What good happened?

EXCESSIVE USE OF MANAGEMENT SYSTEMS

Admiral RICKOVER. By the laws of choice and chance something good must have happened, sir. But during that administration there is no question but that the emphasis was shifted from detailed control of technical work by technical people to reliance on management systems, systems which are today choking us to death.

I make the point that the administrators who have the authority in the various echelons in Washington are never blamed. Their failure may be due to their lack of perception, their lack of vision, their neglect to institute changes needed for control of the work, or their bureaucratic management systems which have diverted technical people from their real tasks. Their hand is in everything, but not their fingerprints.

Their "success" has been to build up a huge paper organization with many managers and few workers.

Their psychological attitude is that Washington headquarters makes no mistakes; if things go wrong the blame lies elsewhere.

Also, it appears sometimes that they like to have subordinates with chameleonlike ability to adapt their views to those of their superiors.

You will find, as you observe them, that many Government activities today are being operated on the basis that most of their people should be engaged in administration.

The various "scientific" management formulations that are now propounded are hardly more than a description of the trial-and-error procedures which were employed by our distant ancestors. But "scientific" words such as "systems analysis" are being used. I note that this expression has now been applied to the kitchen—for a file of recipes!

Right now the Navy is planning to eliminate 700 technical billets from the field organizations to give these billets to a large number of managers in Washington whose positions have just been created. This will substitute additional layers of management in Washington at the expense of technical work in the field.

A few weeks ago I was given a new 650-page book of instructions. This is a "management tool," which is supposed to enable any "manager" to handle any large complex billion dollar project. The first 40 pages state the principles. The remaining 600 odd pages give the file numbers of literally thousands of instructions which are to be used to

solve any conceivable problem that might arise. As the official who proposed this document said, in effect: "By following the rules in this book, you can solve your problems. Our aim is to do away with the need for human intervention. We are seeking rule by law in place of rule by man in our technical work."

It immediately occurred to me that a computer could be used, and no human beings, except taxpayers and Members of Congress would hereafter be required to support the Department of Defense. In fact, the money appropriated by Congress could be assigned to and fed into computers, and in the end a way might even be found to eliminate Congress—which some Government officials in the past have thought to be desirable—because Congressmen and Senators have the disagreeable habit of asking questions which disturb them.

Early in our history we found that we had very few skilled workers, one reason being that, for egalitarian reasons, the ordinary workman here was paid far more than anywhere else, while the skilled worker was paid relatively less and therefore the ones who came here were usually the unskilled.

This was true even during the colonial period, and it led to breaking down into parts the process of manufacturing an article, the making of each of which could be learned easily. The ultimate result was the wide use of interchangeable parts and the assembly line.

We fail and always have failed to distinguish that management must be different according to the kind of work to be supervised. If the work is largely routine any reasonably intelligent person can understand and do it. Under this condition the great authority we, in the United States, assign to administrators—the bureaucrats or rulers—makes sense and is usually not harmful. Witness the accomplishments of our automobile industry, our supermarkets, and so forth.

But this system falls down completely and impedes efficiency when the work of an organization can only be done by highly specialized technical experts. The habitual American predominance of the administrators—the "paper" men—leads to the most degrading, damaging, and costly meddling in technical matters, with the expert routinely being overruled by technically illiterate managers. The prime example is the regime of the recent Secretary of Defense and his "whiz-kids." With their cost-analysis and computer methods they "managed" to lose us the lead we had in nuclear submarines and allowed the Soviets to catch up with us to a dangerous degree. Had Congress not intervened at the last moment we would have stopped nuclear submarine construction almost entirely.

All of this was done in the name of "logic" and "economy." As all of you know, costs have risen enormously, and the military establishment is saddled with an incubus of "paper" people whose major decisions have nearly all been in error; who close their eyes and ears to the mass of information available on Russian military hardware. The size of this group, instead of shrinking, keeps increasing in number—proliferating at the expense of the technical people—whose work alone justifies the Department of Defense. If I were a science fiction writer I could predict a time when the Department of Defense will consist of no one but managers.

We must go beyond the present fad of management gimmickry. The idea of eliminating the expert human being, of finding in ma-

chines or gimmicks a panacea for lack of expertise is to be found not only in the military. It permeates our entire society. For example, it accounts for our constant experimentation with gimmicks to do away with the sad but true situation that children are unequal in their learning capacity. We appear to be unable to accept inequality in this area. We keep hoping we will discover some new technology that will solve this problem, meanwhile blaming the failure of many of our children on teachers, parents, on society at large, never blaming the true culprit—nature—which distributes ability and competence so unfairly.

What I am saying is that an egalitarian viewpoint, admirable as it may be in many ways, leads us down the dead-end road of failing to recognize that some people are born with great potential and manage to acquire certain kinds of expertise, and are, therefore, in this one respect, superior in the performance of their work than those who lack this expertise—all of the teachings of so-called social science notwithstanding.

The phrase in our Declaration of Independence, "all men are created equal" may be factual. I doubt it; it is contrary to what I see every day, to what my senses tell me. However, there is nothing to prevent many from rising above this level of equality. Study, hard work, and self-reliance have been known to achieve wonders along this line.

If we give in too much to the present social science concepts of "equality," we may induce complete political apathy in our people. You will remember that in the days of Constantine free Romans sought to become slaves in order to escape civic burdens.

The ordinary layman simply cannot perform major surgery; pilot a plane; guide a space ship; design a building, or even a nuclear submarine. The trouble in the last 8 years has been that the "paper" people in the Department of Defense have arrogated to themselves the right to decide the most intricate technical aspects of the design, building, and strategic use of such things as nuclear submarines. The Russians do not make this mistake. It is my considered opinion this is a major reason why they are moving ahead so rapidly in weapons technology.

NEED FOR 25-PERCENT REDUCTION IN PENTAGON STAFF

Mr. ANDREWS. A while ago you told this committee that the best thing we can do to bring about more efficiency and economy in Government would be to get rid of 25 percent of the civilian people in the Pentagon.

Admiral RICKOVER. That is right.

Mr. ANDREWS. Do you stick by that figure?

Admiral RICKOVER. Yes, sir. I was being conservative. It is not a question any more of being civilian or military, sir.

The Department of Defense because of its size is like a musclebound giant—a wooden Boeotian whose head is unable to control its arms and feet.

I believe that in their continued preoccupation with the trivial activity of discussion and the busy idleness of studies, they suppress the feeling of emptiness within them.

For my part, I cannot see how there can be reconciliation between the management methods now being used and our ability to have a strong defense posture. Reconciliation is, as a rule, only possible when it is no longer necessary, that is when the conflicting views no longer exist or when opinions have drawn close and when people themselves see that they have nothing to quarrel about. Otherwise every reconciliation involves reciprocal weakening.

Mr. MAHON. You have long been an advocate of smaller personnel forces under certain circumstances. Yet I noticed earlier in your testimony that you spoke apparently with concern over the fact that in a certain effort in our Navy perhaps we had about 400 men employed whereas the Russians had about 7,000. You seemed concerned about this situation.

Admiral RICKOVER. I made a different point there. I was trying to show how small the naval ship design effort is in this country compared with that of the Russians. I said that in one of their institutes, the Leningrad Technical Institute, they had over 7,000 people learning to design ships. We graduate about 400 annually in this country. This is the point I made. These were students and technical people.

Mr. MAHON. Are not 400 good ones better than 7,000 mediocre ones?

Admiral RICKOVER. Yes, but why should I assume that their 7,000 people are less intelligent than our 400?

Mr. MAHON. What is your point?

Admiral RICKOVER. When I said we should reduce the number of people in the Pentagon, I was talking about administrators—not technical people. I made the point that the technical people are being displaced by administrative people; that their time is being spent on studies and in preparing administrative memorandums. There is one thing which has increased and that is paperwork.

The administrators have constructed an ideology which includes within itself objects which appear alien to empirical commonsense.

Actually, good management consists of whatever it is that men who head strongly innovative organizations actually do. In the Ethics of the Fathers it is stated: "Who is the righteous man? He who does righteous deeds." To paraphrase this: "Who is the good manager? He who manages well." Have I answered your question in measure, sir?

Mr. MAHON. Yes, and I wish you would expand your views further.

NEED FOR MORE WORKERS AND LESS MANAGERS

Admiral RICKOVER. Yes, sir.

So far as I can see all the emphasis is being placed on trying to solve warship design, development, and construction problems through further implementation of management systems and directives rather than by assembling and training the technical groups necessary to provide direct control of this complex work—technical groups having the resources and ability to be directly responsible for carrying out this difficult work—and purchasing groups having the ability and training to obtain from industry contractual terms that are in the Government's best interest—purchasing groups that will be backed by their military and civilian superiors in obtaining industry acceptance of contract terms and conditions fair to the Government. In my

opinion our society today is vastly overmanaged, and much of our inability to solve our problems is due to this overmanagement.

The situation obtains in business, in industry, in Government. A new cult has arisen which pretends to claim that problems can be solved by following the "principles of management" which have been evolved in the business administration courses being taught in our colleges. It is claimed that once one learns these principles, he can use them in all situations; that detailed knowledge of the art or technology involved is not necessary; that proper application of the "principles" will cause all problems to be solved.

This belief has led to the creation of a management "elite" who presume to know how to get things done without needing to know, in detail, the basic elements of the problems they are attempting to solve.

Nowhere else has this concept been more rampant than in our own Department of Defense in the past 8 years. Its "management" systems as propounded by its priesthood of "cost-effectiveness analysts" was heralded far and wide by its own vast public relations staff—its own propaganda arm—as the new creed which all organizations should adopt. This creed of "cost effectiveness" purports to be a sure fire "scientific method" which solves all problems. It swept the Pentagon like wildfire. Billions of dollars were spent in accordance with the creed. Only through the efforts of Congress was it stopped from being adopted lock, stock, and barrel by all Government agencies.

Institutions wither when there is no diversity and no conflict. This is something to remember in the face of the fairly widespread assumption that all the Department of Defense needed was indoctrination in a single consistent line. It was never understood that if you would persuade someone to your view, you couldn't afford to be more than 85 percent right; our previous Secretary of Defense was always 100 percent right. It was impossible to argue with him, but it was easy to understand him, as it is easy to understand every extreme.

Today, the effects of this cult are apparent. Failures in weapons systems and large overruns of the 1960's have come to light, although the cost-effectiveness system was heralded as the panacea to end the weapons systems failures and cost overruns of the 1950's. It appears that in some cases the cost effectiveness system was used to kill or delay a project not desired by its leaders, whereas those they did desire were accorded the sacred seal "cost effective."

To organize and staff a system such as this required large numbers of brilliant young men—mostly social scientists, particularly "sheepskin" economists. The analyst-in-chief recruited large numbers of these and gave them much authority—especially over the military. Their ability to make quick decisions was stressed. One example frequently cited was the case where the analyst-in-chief needed a quick answer to a complex problem. The military said they would require more than 24 hours. But the young intellectuals came up with a solution in one-half hour. Their solution was, of course, adopted. The fact that the solution was worth only "one-half hour" was lost sight of.

Each of these bright young men had the authority to go anywhere in the entire Defense Establishment and ask for detailed studies from the military people—who had a specific job to do. These studies, since they were required from on high, naturally took priority over the real work to be done—to the neglect of designing, purchasing, and manu-

facturing the actual military equipment. Then when things went wrong it was naturally the fault of the military—never of the brilliant young men who made the decisions—decisions frequently reached without full consultation with those who had to carry them out.

This system mushroomed at an alarming rate. Not only did it proliferate within the Defense Department; in addition, many “think factories” were set up to help, and there was frequent interchange of people among the Defense Department agencies and the “think factories”—a form of incest. Eventually, the Army, Navy, and Air Force set up their own “cost-effectiveness” systems.

As a result, we have now reached the stage in the Defense Department where there are more and more people to do the managing and fewer and fewer people to do the work.

Mr. Chairman, you can expect more *Pueblos*, more thousands of sheep killed by nerve gas, more airplanes improperly designed, more inefficiency, more cost overruns, more submarines sunk at the dock—unless we go back to basic principles and realize that it is people, not systems, that alone can solve our problems. Doubtless there is now concern in high places, but there is not much understanding of the magnitude of the problem.

Often the position becomes that of the captain and officers of a great ship which has run aground in a falling tide; no human endeavor will get the ship afloat until in the course of nature the tide begins to flow.

I hope we never reach the point, as expressed by Henry Adams: that the actions of Presidents and generals are “like mere grasshoppers kicking and gesticulating on the middle of the Mississippi River”—carried along on a stream which floated them, after a fashion, without much regard to themselves.

I believe however, that it is possible, if we do not mesmerize ourselves with the “rules” of management evolved by the social scientists to regain control over the Department of Defense and of its activities.

But as things are going now, the technical proficiency of the Navy is being reduced every day. The Russians have taken advantage of this trend and are clearly getting ahead of us in nuclear submarines. That is my opinion and I will stick by it. I am saying this to your committee because you have had experience with my work. I have not given you much incorrect information. I cannot imagine the Russians handling their submarine design the way we are handling ours. I can't conceive of it. That is the point I wish to make to this committee.

THE ADMINISTRATIVE TIMELAG

A simple measure of the efficiency of the management of our Military Establishment is the leadtime it requires to produce new military weapons. On this point let me quote from a press conference held October 27, 1959, by Chairman John A. McCone of the Atomic Energy Commission, on his return from a visit to Russia:

“Question. I wonder if you could tell us from the administrative side whether you found that their administration is perhaps abler to put policies into practice a little bit faster than we are? What comparisons you might draw on the administrative side.

Chairman McCONE. We were quite surprised with the speed with which they could accomplish certain specific objectives. Their plan of organization, under which their institutes which correspond to our laboratories are operated by their Academy of Science, seem to give them a facility for mustering and directing their scientific and technical talent in such a way that they get things done in remarkably short time.

Question. Does this business of expedition in making decisions and mustering their financial and brainpower have any application in this country? Is this something that we have to improve on?

Chairman McCONE. I think that is right."

I mention these comments of Chairman McCone because, if anything, they are even more pertinent today than when he made them in 1959. What I call the "administrative timelag" has grown immeasurably in the interval. I believe there is a direct relation between this increase and the vast expansion of the Defense Department's civilian general staff in the last 8 years. There is a saying that no one can be called a great economist who causes an economic disaster. By the same token no one engaged in managing our Military Establishment can be called a great administrator when, under his administration, our own competitive position vis-a-vis a potential enemy deteriorates.

Consider how it has been almost impossible in the past for us to get permission to build just one new submarine. We had to go through several cycles of approval which took years. This was not Congress' fault. This was the fault of the management in the Defense Department.

Perhaps the way to force a change is for Congress to say, "We are not going to appropriate money for more than so many headquarters employees in the Defense Department." That is a rather drastic approach; but, if I were in Congress I would seriously consider such action. A lot of money spent on defense has been wasted by the "paper" people.

I have testified to your committee many times on this general subject. But as it is of even more importance today, I'll ask your indulgence if I repeat some of the things I have said before.

I was on duty in the Bureau of Ships during most of World War II. I was responsible for all design, procurement, installation, and maintenance of electrical equipment in the Navy. The Navy was not so complex an organization that its technical problems could not be handled well by the in-house capability we then had. We were given adequate authority and we did our job.

But with the vast increase in technology since World War II the Navy has gone downhill technically. This has been accentuated by new management procedures which have been instituted. It is estimated that every 18 months the need for computers in this country doubles, and my own experience in nuclear-power development shows that this is pretty well the case. I would say that in the last 8 years organization and administration requirements have also doubled every 18 months, so that the few of us who are left who can do technical work find ourselves engaged more and more in procedural and administrative, instead of technical matters.

In the 15 years following World War II through 1960 several

changes took place which had a major effect on the Navy's capacity to do technical work.

The rate of development of technology increased rapidly, which required a much greater technical competence to carry out a successful weapons development than had previously been required.

At the same time the technical competence of the Bureau of Ships was declining rapidly due to the failure on the part of the engineering duty officer leadership to recognize the steps that had to be taken to build and maintain a strong cadre of competent officers and civilians to carry on the increasing technical business of the Bureau of Ships. Further, many of the better qualified civilian Bureau of Ships employees were attracted to other jobs.

The net result is that for the job to be done there was greater technical competence in the Bureau of Ships in 1939 at the outbreak of World War II than there was in 1960 and significantly greater than there is in the Naval Ship Systems Command today.

The Navy failed to establish an organization staffed with relatively permanent technically qualified officers or civilians to think through and establish the technical requirements of the Navy. The Ships Characteristics Board in the Office of the Chief of Naval Operations, which nominally determined the Navy's ships characteristics, was established as a voting forum composed of short-term transient officers who bore no responsibility for carrying out the work programs or for their success.

Contractors involved in the naval shipbuilding industry, devoid of responsibility for insuring satisfactory operation of the product, motivated by profit, and in general free from tight control by a technically strong Government agency, developed inefficient, expensive, and poor quality hardware.

In 1961, there was a dire need to reform the Navy's method of handling development, procurement, and maintenance of warships. The basic need was to establish groups of technically competent people with clear authority and responsibility for executing the various Navy programs, similar to the strong technical management approach that had prevailed in the nuclear propulsion program and later in the Polaris program. There was also a need for strong technical groups in the shipyards and industrial contractor organizations to carry out the technical development work under close technical direction from the Government headquarters organization. These needs were not being met.

The Navy, obviously, had not done a very good job, so when the new Secretary of Defense took office in 1961, the Navy was, very properly, investigated and much was found to be in need of improvement. But, in my opinion, many of the changes made were in the wrong direction. So many administrative organizations have been established that the few remaining technical people are spending nearly all of their time on administration.

I remember a discussion I had with the Chief of the Navy's Bureau of Aeronautics in 1948. He told me that his Bureau had representatives on 203 committees. I asked him why all this was necessary, didn't attendance at all the meetings keep his technical people from doing technical work? He replied, "I have to do this in order to avoid being in the position of having decisions made in my area of responsibility with-

out my knowing about them and without consideration of the relevant technical factors." This is the very same reason I must devote so much of my own time and that of my leading technical people to administration—to the detriment of our technical work. I firmly believe that many of our technical failures can be attributed to over-administration and lack of attention to technical detail.

New Department of Defense organizations have been set up and they have recruited many of their people from the small number of technical people who were still left.

DEFENSE DEPARTMENT OUT OF CONTROL OF ITS LEADERS

What is basically wrong with the Defense Department, in my opinion, is the excessive size of its headquarters, its civilian general staff, which has grown at such a prodigious rate in the last 8 years that it has now reached what in an atomic bomb is called a "critical mass." As you know, when a critical mass is reached, the bomb "takes off"; it is out of control. The DOD headquarters staff has become so vast that it has gone out of control of its own leaders.

There are so many layers of administrators that they constitute a thicket impeding action on vital matters for which DOD approval must be obtained. At numerous points there are barriers—often manned by relatively minor administrators—which check progress. In consequence, almost nothing can now be decided without inordinate delay. It is bad enough to make wrong decisions but infinitely worse to make none at all—as happened with the aircraft carrier *John F. Kennedy*. By simply refusing to act on the request of the Armed Forces and of Congress that the carrier be nuclear-powered, the civilian general staff killed the project and got its wish to have it powered by conventional fuel. Last year, the building of the electric drive submarine and the fast submarine were held up possibly with the hope for the same result. This is a dangerous game. Our enemies will not politely hold their hands while still another study is made by the Defense Department.

NEED FOR IN-HOUSE TECHNICAL CAPABILITY

The present policy which evolved in the last 8 years seems to be that if you want to get a technical job done, you go to industry and they will do the job. The Government people are supposed to "manage"—not do technical work. Offhand, this sounds like a pretty good idea, but I can offer an answer to that. What I say will be backed by our contractors: We would not have had one successful nuclear propulsion plant if we had accepted what industry offered us. Industry itself will admit that. Therefore, it is absolutely essential, in my opinion, to have a strong in-house technical capability at headquarters if the job is to get done properly and at reasonable cost.

This was the lesson the Germans learned in World War II. Their army and their navy had been accustomed to depending on industry, and did not have much in-house capability. On the other hand, their air force, being new, had built a strong in-house capability, and could thus judge and oversee their industry. That is why the Germans in World War II took the lead in aircraft design.

The same is true today. It is my opinion that the lead we have in nuclear propulsion technology is because we have a strong in-house capability. I am sure the committee knows something about this.

Senior naval officials and the analysts in DOD have often, in my opinion, displayed a naive attitude toward the capabilities and motives of U.S. industry in producing suitable weapons systems without the technical direction and badgering of strong military technical groups. To successfully carry out the development and operation of a new warship system requires a technically strong centralized permanent group within the Government, a group that has the authority and responsibility for executing the task. Only a Government group can provide the independent customer appraisal of the development work necessary to insure a satisfactory product. Appraisal from the viewpoint of the customer responsibility for satisfactory operation and maintenance of the product is necessary to insure satisfactory product performance and the feedback into the design of lessons learned.

Industry does not—and cannot properly—have the responsibility for insuring a successful defense product. Industry is basically motivated by profit. It must, or it could not continue to exist. Therefore, industry cannot be counted upon to do Government work without close Government technical control. There is ample experience showing that industry does not want tight specifications and tight inspections.

Some of the senior officials in the Navy do not have enough experience in the technical aspects of weapons development and do not fully understand the approaches which must be used to successfully develop and operate modern weapons. At the same time, they are expected to make detailed decisions which affect all the basic elements of weapons development. They are expected to explain and justify these decisions to higher authority in the Office of the Secretary of Defense. This has led to the technical people spending an increasing proportion of their time preparing justifications, and consequently having less and less time to devote to technical work.

Dr. Frosch, the Assistant Secretary of the Navy for Research and Development, aptly summarized this situation as follows: "As we are now behaving, we are using up our best people in filling out documentation for their superiors to read, and most of the time no one is running the store." To what Dr. Frosch said, I would add that with the large number of documents prepared, I doubt that more than a few ever get read.

Men without the necessary technical training and practical experience hold positions of authority within the civilian headquarters organizations of the Defense Department, positions that permit them to decide technical and operational matters. Lacking the hard experience of those who must solve complicated technical problems, who daily come up against the difficulty of getting anything concrete accomplished in this world, the administrators and systems analysts of the Defense Department make little allowance for technical expertise in their "scientific" decisionmaking process. They have little if any comprehension of the elusive attribute of exceptional personal perception and ability that anyone involved in a new technology must possess if he is to succeed. They customarily substitute "method" for "substantive knowledge."

This is typical of the social science approach which continues to permeate the civilian headquarters of the Defense Department where social scientists hold high position. In education, it has led to the dogma of the progressive educationists that knowing how to teach is more important than knowing what to teach. In management, it fosters the delusion among high-ranking administrators that the position they hold of itself invests the holder with competence in all areas of his domain.

There is an essential difference between the nontechnically trained or experienced administrator and the engineer. Administration is necessarily based on the law of averages. The pure administrator learns how people will act "on the average" and he makes decisions accordingly. Therefore, he can be promoted to ever higher positions and continue to use the "law of averages." The engineer on the other hand cannot be governed by statistical averages. Each decision he makes is concerned with a specific item. That item must work. It is not enough that such items will work "on the average." Therefore, the effective engineer, if he is to do an adequate job, is condemned to being concerned with details. A single apparently minor detail can wreck a major project even though all the other parts work. This constant attention to detail is a prerequisite—the hallmark—of an engineer worth his salt. The engineer's product either works or it's "junk."

For a man to take full advantage of modern technology he must raise his standards of knowledge and performance. The high temperatures, pressures, and speeds needed today require the use of materials close to their ultimate limits.

Therefore, utmost care must be taken in design, manufacture, installation, and operation. No carelessness can be tolerated anywhere in the entire chain—or the result may prove disastrous. Every person involved must constantly bear in mind that he personally is responsible for the entire ultimate result. Advertisements and statements claiming that the particular organization has an effective so-called zero defects program should be recognized for what they are—"motherhood" and propaganda statements. These are the sort of words administrators, who have little, or no technical competence or experience, love to use. They tend to delude the workers and the customers as well as those who make the claims. In this way they detract from meaningful effort. It should be a mandatory requirement that every administrator be made responsible for personally directing in detail one of his projects. This would immediately show him the human and material pitfalls involved. He would not be able to sit at a desk issuing orders and reading reports without understanding their real meaning. The only way to obtain the kind of quality that is essential today is for each person involved to understand what he is doing, and to recognize the consequences of failure. He must dedicate himself to do the job as if his own life depended on it and not rely on self-serving clichés.

Once at a meeting with engineers from industry, they recommended to me that I ease up on a certain requirement. I asked them, "If you knew that your son had to serve in that submarine would you design it my way or your way?" This question shook them. They agreed at once that my way was the right way.

The whole tendency of the Navy and the Defense Department is to do away with technical expertise, and to have the remaining people

become "managers." This came forcefully to my attention several years ago when I started looking in detail into the nonpropulsion areas of the deep submergence research vehicle, NR-1. I found that the Naval Ship Systems Command did not have even one person assigned full-time to the nonpropulsion aspects of the NR-1, regardless of the fact that the NR-1 will be the deepest diving nuclear submarine ever built. The people who know about submarine design had been assigned to administrative organizations.

I wrote a rather forceful letter, and I got two people assigned responsibility for the nonpropulsion aspects of the submarine. I also discovered that had I allowed the NR-1 nonpropulsion plant design to continue the way it was proceeding, failures would quite probably have occurred. This further illustrated that submarine design capability needed considerable improvement both in industry and in the Navy.

The lack of a strong submarine design capability in the United States is one of the most important problems facing the Navy today, yet it doesn't even appear to be recognized. The investigation following loss of the *Thresher* should have made this abundantly clear to everyone. Yet it didn't. All that was done was to spend several hundred million dollars in the "Subsafe" program to patch up the mistakes of the submarine designers in going to deeper, faster submarines than they were used to. Nothing was done to establish a technically stronger submarine design organization to meet ever-increasing new requirements. If anything, submarine design is less controlled technically today than it was when the *Thresher* was designed.

Senior naval officials, not being experienced in technological development, and faced with having to justify all their recommendations in detail on a dollar-cost basis, have turned to reorganizing the Navy Department in a direction that will produce for them the paperwork studies necessary to gain approval of service programs. Their attention is directed to cost studies and status reports—not solid technical work. The Secretary of the Navy and the Chief of Naval Operations have surrounded themselves with analytical groups staffed with officers and civilian analysts who also have little or no technical expertise.

The Navy's organization for handling shipbuilding has been reorganized on the pattern of the Air Force Material Command. Let me give you an example to show how this has reduced the Navy's technical control of shipbuilding but has increased the management systems involved in reaching decisions in shipbuilding matters.

Until about 3 years ago, shipbuilding was handled by the Bureau of Ships. The Chief of the Bureau of Ships then reported directly to the Secretary of the Navy. I was at that time Assistant Chief of the Bureau of Ships for Nuclear Propulsion. At that time the Chief of the Bureau of Ships had a great deal of authority in shipbuilding matters. He could go directly to the Secretary of the Navy for approval of shipbuilding matters. Because of the unique responsibilities and requirements for nuclear safety that are involved with nuclear propulsion. I was also given direct access to the Secretary of the Navy for nuclear propulsion matters.

In those days there were also three other technical Bureaus in the Navy Shore Establishment, their Chiefs all reporting directly to the Secretary of the Navy.

About 3 years ago, the Secretary of the Navy changed administration of the Navy's technical work to the Air Force organizational method; he established the Naval Material Command to be similar to the Air Force Material Command. Also at that time the four technical bureaus were eliminated and their functions assumed by six new "Systems Commands." The technical people in the Bureau of Ships—other than in my organization—were put into the new Naval Ship Engineering Center, a field activity of the Naval Ship Systems Command. The management of shipbuilding was made the responsibility of the Naval Ship Systems Command of which I was made Deputy Commander for Nuclear Propulsion. This reorganization, which created a new large bureaucracy—the Office of the Chief of Naval Material—added another layer of "management" between the technical people who have to get into the engineering details to get the job done, and the people in charge whose approval must be obtained to proceed. The many people in the Office of the Chief of Naval Material are authorized to ask questions, and to delay going ahead with important work. Their endorsement must be obtained to get a recommendation forwarded to higher authority in the chain of command. But there is no one in the Naval Material Command who has the authority to approve proceeding with programs.

Subsequently, the organization was again changed to have the Chief of Naval Material report to the Chief of Naval Operations rather than directly to the Secretary of the Navy. That change was supposed to keep the Chief of Naval Operations in the responsible chain of command. However, the net effect this had on the technical people was to add another layer of management to fight proposals through before you could get approval. To understand the overwhelming effect of these changes you must realize that every officer and civilian in the Offices of the Chief of Naval Material and the Chief of Naval Operations regards himself as senior to the Commanders of the Systems Commands and appears to feel free to introduce his thoughts, questions, and desires into any matter coming through his office. Of course, in my own case, because of my special Atomic Energy Commission responsibilities with regard to nuclear safety, I have been able to retain direct access to the Secretary of the Navy, the Chief of Naval Operations, and the Chief of Naval Material. But the other engineering personnel in the Systems Commands do not have that authority.

When the present Department of Defense officials took office, they started checking the status of programs they had inherited and, as everyone is now aware, found much evidence of "bad management" and started various investigations. Unfortunately, it is almost never the conclusion of such investigations that there are unnecessary people and unnecessary management systems in the management chain. So once again, the new solution to these problems has been to create about a dozen so-called project managers in the Naval Ship Systems Command; these are responsible for the various shipbuilding programs. New management directives are pouring out. I saw one the other day that would reorganize me to be a secondary manager working for four of these project managers who then report to the Commander, Naval Ship Systems Command, who reports to the Chief of Naval Material, who reports to the Chief of Naval Operations, who reports to the Sec-

retary of the Navy. I succeeded in getting that document changed insofar as my responsibilities are concerned.

However, there are now five layers of management where there were two before. Yet, the people responsible for doing the work are supposed to get the same job done.

In this connection, the following, written by Gaius Petronius in 210 B.C., is germane: "We trained hard * * * but it seemed that every time we were beginning to form up into teams we would be reorganized * * * I was to learn later in life that we tend to meet any new situation by reorganizing; and a wonderful method it can be for creating the illusion of progress while producing confusion, inefficiency and demoralization."

The technical bureaus which formerly made most of the technical decisions and whose chiefs formerly reported directly to the Secretary of the Navy, now find themselves with two bureaucracies interposed between themselves and the councils of the Secretary of the Navy. Both of these bureaucracies—the Office of the Chief of Naval Material and the Office of the Chief of Naval Operations—are headed by unrestricted line officers and are staffed with high level administrative groups who delegate their responsibilities for executing technical work. Further, many of those few remaining highly competent technical personnel in the officer and civilian groups of the former technical bureaus have been transferred from the bureau technical work to administrative work in the Office of the Chief of Naval Material and the Office of the Chief of Naval Operations or changed to the status of "field activities" with no line authority or responsibility—as is the case with the Naval Ship Engineering Center—while responsibility for executing the work remains in the Systems Commands which have replaced the bureaus but have lost most of their technical capability.

Thus, today, the technical people in the Systems Commands have been reduced in status, have been deprived of most of their authority, have had many of their best people ordered into a field activity or attracted away from them to handle senior administrative positions, have had their voice in the councils of the decisionmakers muted, but have been left with the responsibility for executing the technical work.

Too many layers of administrative groups have been established between the technical people responsible for carrying out the work programs and the people making the decisions on what work is to be done. The technical groups, both officer and civilian, are being allowed to atrophy without replacement.

The present trend must be reversed without delay or the Navy's technical programs will be headed for serious difficulties—it may already be too late. It takes many years to develop a technical capability; it takes but a short time to liquidate it. If the Navy is to succeed in meeting its technical commitments it must run its business so as to attract and retain technical talent both in its own organization and in the organizations of its prime contractors.

It is essential to the future welfare of the Navy that top Navy and Department of Defense management attention be placed on increasing the stature and authority of the technical groups charged with the responsibility of executing the Navy's technical work. If the current assumption that this work can be successfully turned over to in-

dustry is allowed to continue, the Navy will soon find itself exhausting its energy and finances to patch up the unsuccessful technical products it will receive from a loosely controlled industry.

I well know the reluctance of the legislative branch to interfere with an agency of the executive branch. But after all, Congress does have the constitutional authority to "raise and support" our military forces. Surely this means more than merely appropriating funds. As the representative of the people in whom all authority ultimately resides, the Congress has the responsibility of "oversight"—of making certain that the taxes paid by the people are spent wisely and in the public interest.

Should we ever lose a war, to what avail would it then be to say: It was not the business of Congress to meddle in affairs of the executive branch.

ROTATION OF PERSONNEL

Mr. MAHON. Admiral, you have testified to this subcommittee before about the frequent rotation of personnel in the Navy and how this has affected the Navy's technical capability. Has there been any improvement in this problem?

Admiral RICKOVER. No, sir. I believe this matter bears directly on the problems of poor quality and high cost of our new and complex weapons systems. We are still cycling people rapidly through their jobs, line officers and others. We must devise a way to assign our military personnel with a degree of permanence in the Navy. This is where I think Congress is quite remiss.

As you know, four out of five officers stay in the Navy for 3 or 4 years and then get out. Three out of four sailors serve their first enlistment, and then get out. Those who stay on—both officers and men—are not always the better ones. So at a time in the history of the United States when everything is getting more complex, the relative capability of the military to do their job is decreasing.

The officers who do stay in the service for a career are rotated frequently from one job to another. They are going along with a system of which it may be asked, as Lord Acton asked: "Does this ship exist for the passengers or do the passengers exist for the ship?"

The officers should exist for the Navy. But the Navy just runs along with every line officer being trained to become the Chief of Naval Operations and every engineering duty officer in training to become Commander of the Naval Ship Systems Command. We have a 50-percent turnover every year in the crew of our nuclear submarines. How can you run a technical organization that way?

It is literally impossible to run a technical business requiring sophisticated technology with the people in charge being rotated in and out of those assignments on a 1-, 2-, or 3-year basis. I don't care how superior the intellect of those individuals is. They may be the finest people alive. You simply can't run a technical business that way today.

We made a survey of the naval shipyards that are engaged in nuclear propulsion, and we found that over a period of 18 years in these shipyards, one of the top three people—the shipyard commander who runs the shipyard, the planning officer who is in charge of all design work and cost estimating, and the production officer who is in

charge of all the construction, those are three key positions in the naval shipyards—over an 18-year period, on the average of every 6 months one of those three top people changed in every one of those shipyards. Further, never was any one of those people in his position for a period of more than 4 years, and that was an extremely rare case. I don't think you can run a sophisticated technical business that way.

Despite the frequent rotation of shipyard officers, steps have not been taken to assign adequate responsibility and authority to permanent qualified civilians in the yards. In recent months I have had some success in getting shipyard commanders to assign experienced civilians functions concerning nuclear work heretofore assigned to transient, inexperienced officers.

It should also be recognized that immediately after World War II our naval shipyards were reorganized to change the position of the senior engineering duty officer in the yard from working full time on technical work as the manager of the industrial division, to the position of shipyard commander whereby he assumed all sorts of military and public relations duties. Today the shipyard commander of a naval shipyard spends a large part of his time taking care of various military functions, making speeches before civic groups, and so forth—none of which have to do with his prime reason for being at the shipyard. In one of our naval shipyards the senior naval engineer even runs a naval prison.

If our present policy of frequent officer personnel rotation, our policy of assigning our senior naval engineers all sorts of unrelated military duties, and the policy of restricting permanent qualified civilians from being assigned adequate status and responsibility in the shipyard hierarchy, are allowed to continue in our naval shipyards—which are among the largest industrial establishments in the United States—it is inevitable that major calamities will occur—such as the recent sinking of a submarine at the dock—which might otherwise have been avoided.

On numerous occasions when I have visited the shipyards I have observed vast amounts of unproductive labor, and I have so reported to the shipyard commanders and to the Commander, Naval Ship Systems Command.

It appears that, once an officer is assigned as shipyard commander, he often tends to think of himself as part of the yard organization rather than as the Navy's representative. It then becomes difficult for him to fully employ his critical faculties.

The recent surge of massive paper systems imposed by higher command, as well as locally—as substitutes for competence and individual responsibility—has reached a peak. Management has come to rely on these paper systems instead of on personal involvement by line supervision. Workers need personal supervision and leadership to do their job properly. I do not mean that we should eliminate job instructions or recordkeeping; but masses of paper that are little read, and even less used, are worse than none at all.

I believe that an immediate reduction in personnel at our yards would result in increased production. This has been proven in other places where work was falling behind, notably on a large construction project of the Atomic Energy Commission. When the contractor for

this project was replaced, the new contractor dropped several thousand people; the work immediately speeded up. From what I have seen, an immediate reduction at several of the yards of about 10 percent—the nonproducers—could lead to increased efficiency.

It must be realized that, under existing rules, it is most difficult for shipyard commanders to get rid of anyone for cause, no matter how poorly he performs. Therefore, if the Department of Defense is actually in earnest about improving the efficiency of our naval shipyards, it should take immediate steps to alter and simplify the rules so that naval shipyard management will have the same freedom as private yards to improve worker efficiency.

I have also recommended that shipyard commanders be relieved of their military duties, such as area coordination, base commander, public relations, and so forth. These take up most of their time, to the detriment of their primary task. I would require them to devote their efforts to the technical and production aspects of the yard alone, and that the military and other extraneous duties be placed in the hands of a line officer.

What I have said is essentially no different than what I have been saying for years in the Navy and to Congress. However, I am convinced that it will take a major catastrophe before anything is done. I believe that unless Congress takes the lead and does something about personnel, the problem will not be solved.

There is a plaque in the House Armed Services hearing room which quotes the Constitution to the effect that it is the duty of Congress to do so-and-so with reference to the Army and Navy. Here is an issue where you can do much good for our country. It is of greater importance to the United States than many other problems you concern yourselves with. After all, mistakes in appropriations can be corrected in time, but time will not be available to correct personnel defects if a large-scale war erupts.

When Mr. McNamara took over as Secretary of Defense, he found a pretty bad situation. He found a transient military management which couldn't run the headquarters military affairs properly, so he took over. He stepped into a vacuum. As we have been discussing, he set up a large group of smart young civilians, many of whom were economists and accountants, to help him.

In my opinion what he should have done, like a prudent father, was to recognize that the personnel system which had led to this condition was faulty and that he needed to rectify the education, training, and assignments to duty of the military personnel.

Instead, he collected all authority in his own hand; he made the DOD headquarters larger and larger; he began to make all decisions, technical and operational, himself—based on the recommendations of his large staff. As long as we were not at war, the system appeared to work because there is no way to check the efficiency of the huge \$80 billion a year Defense Department in peacetime.

The net result was that the military became despondent; they realized that the way to obtain men and equipment for their service was to acquiesce as much as necessary with the demands of their bright young superiors.

The Defense Establishment is so vast that it is impossible for any single human being to make all of the decisions. For this reason, it

set up a system operated by rules. It hit on "cost-effectiveness" as the simplest "rule" for solving problems. Decisions were made by the rules ground out by the cost-effectiveness analysts.

The mainsprings of the behavior of the systems analysts tend to remain concealed from our vision. Total immersion in systems analysis can lead the most intelligent people into a dreadful, sticky, featureless swamp where every familiar object loses its identity, becomes a symbol or substitute or analog for something else, which in turn yields to the same interpretative corrosion, and so on ad infinitum.

The field of technology is still in its infancy; the issue of what is and is not feasible will in the main be determined through both small- and large-scale development with working systems, as has been true in all successful developments. Paper analysis prior to the development of such systems is of very limited value.

The systems analysts consider the military they deal with as capable of only plodding along without reasoning, as old horses work, who probably suppose it is their duty to put on their harness at dawn and haul something. They seem to look on the military as unimaginative cowboys.

SYSTEMS ANALYSTS

Mr. MINSHALL. Admiral, I know that you have been critical for many years of the work performed by the systems analysts. However, it has been my impression that their influence in the Pentagon is waning. What is the situation now?

Admiral RICKOVER. I think it is true that a smaller percentage of the recommendations of the systems analysts are now being accepted by the top management of the Department of Defense. However, that doesn't tell the whole story.

The quality of the reports and recommendations of the systems analysts has, if anything, gotten worse. Perhaps the most flagrant example was their suggestion a few months ago that we could save money by sinking 10 of our Polaris submarines. The systems analysis memorandum containing that suggestion contained many other suggestions including a proposal to eliminate the electric-drive submarine. Mind you that memorandum was made shortly after Secretary of Defense Clifford had personally decided to go ahead with the electric-drive submarine following a detailed 5-month review of the importance of that project. Let me read to you what the Joint Committee on Atomic Energy said about this systems analysis memorandum in the June 17, 1969 foreword to their hearing record on the "Naval Nuclear Propulsion Program, 1969":

The Joint Committee has published hearings on "nuclear submarines of advanced design" held on June 21 and July 25, 1968. In the forewords to those hearings, the Joint Committee expressed its strong support for an aggressive nuclear submarine development and construction program and specifically stressed the committee's support for the electric-drive submarine. The importance of quietness in a submarine is inherent in submarine warfare; the electric-drive submarine is being designed to be quieter than any submarine we now have or have planned. At the time of the Joint Committee hearings last summer, the funds for the electric-drive submarine were being held up by the civilian staff of the Secretary of Defense while additional studies were conducted. The members of the Joint Committee, as well as the members of the House and Senate Armed Services Committees, repeatedly urged the Secretary of Defense to proceed with the electric-drive submarine . . . Finally, on October

25, 1968. Secretary of Defense Clifford announced that he was directing the Navy to proceed with the electric-drive submarine program.

The Joint Committee was pleased to learn from Admiral Rickover's testimony . . . that work on the electric-drive submarine is well along—the basic design work is complete and detailed plans are being drawn, that long leadtime equipment and material is on order and that hull fabrication has started.

However, the Joint Committee is distressed by a memorandum signed last month by the new Acting Assistant Secretary of Defense for Systems Analysis which says that the electric-drive submarine is not needed. This was the same memorandum recently reported in the press which contained the ridiculous suggestion that we should consider saving money by sinking 10 of our 41 Polaris submarines.

The record of the electric-drive submarine is one of exhaustive review and study at the highest levels of our Government. Last year, the Secretary of Defense, Deputy Secretary of Defense, Director of Defense Research and Engineering, Secretary of the Navy, Chief of Naval Operations and many other senior officials of the Department of Defense and the Navy personally spent many hours of their time going into the details concerning the justification for developing this important submarine prior to the announcement of the decision to proceed by Secretary Clifford. There have been extensive congressional hearings published concerning the urgent need for this submarine. The Joint Committee wishes to again state that the electric-drive submarine should be built as soon as possible and must not be held up for additional studies.

The systems analysts have a long record of causing delays or cancellation of naval nuclear propulsion projects that Congress considered vital to our national defense. The record is clear that the systems analysts staunchly—

Opposed nuclear propulsion for the carrier *John F. Kennedy* in fiscal year 1963 and again in fiscal year 1964;

Opposed the nuclear frigate authorized by Congress in fiscal year 1966 which the Department of Defense refused to build;

Opposed the nuclear frigate authorized by Congress in fiscal year 1967 for which the Department of Defense held up the release of funds for 18 months;

Opposed the nuclear frigate authorized by Congress in fiscal year 1968 for which the Department of Defense held up the release of funds for 22 months;

Opposed continuation of the nuclear attack submarine building program beyond a force level of 60;

Opposed the electric drive submarine authorized by Congress in fiscal year 1968 which the Department of Defense held up from May through October 1968;

Opposed the high-speed submarine which Congress authorized starting in fiscal year 1969 over the objections of the Department of Defense.

President Nixon stated his dissatisfaction with this record and his strong support for nuclear-powered submarines and surface warships in his campaign pledge on October 2, 1968 * * * to "restore the goal of a navy second to none."

We are not going to sink 10 of our Polaris submarines and we are building the electric drive submarine. But do you have any idea of how much time of the top people in the services is taken up preparing rebuttals to memorandums prepared by systems analysts? Time that is taken away from carrying out our assigned responsibilities.

I think that the new leadership in the Pentagon is beginning to perceive this. Now that the systems analysts no longer have all of their ideas accepted in Pentagon decisions, it is apparent that some of them are taking their ideas and arguments to the press and to Members of Congress to help fuel the current attack on the military. Recent arguments made against the various weapons systems for which the Defense Department is seeking approval are heavily sprinkled with references to Pentagon systems analysis studies which purport to show that this or that weapon is not cost effective. The Pentagon managers are now finding themselves having to publicly refute studies made in their own Office of Systems Analysis. But again all of this takes the

time of the top people in the services and in the Defense Department away from their primary jobs.

It was never the intent of the Defense Unification Act to establish a group of analysts that would, in effect, become the decisionmaking apparatus of our Defense Establishment. The better method, one that would have had some lasting results, but a far more difficult one, would have been to educate and train the military officers so they could handle the technical and military affairs of the DOD themselves. Such a course, however, takes many years and has no glamour.

For example, take the aviators we interview for nuclear training to command aircraft carriers. We find that in a period of 18 years or so they have had 18 different jobs. What sort of Congressman would you be if you held your job for only 1 year?

So what Secretary McNamara should have done, in my opinion, is to say: "Now here is a long-range job for which I will never get any credit," because one doesn't get credit for attempting to change a personnel system. That is most difficult. But no one has really touched that personnel system.

The personnel problems of our military services are far more important than nuclear power for surface ships or submarines. If you solve your personnel problem, you solve the other problem. Everything is done by and through people. I see no point in Congress appropriating more than half our taxes for military purposes and not devoting time to seeing whether the money is properly spent. It is like giving a vaccination and not bothering to find out whether it has taken.

We have had a situation where the road to military preferment is for officers to get into the cost-analysis racket. The military have learned that if they are to stay alive and get ships and equipment in this climate, they have to set up cost-analysis organizations of their own. More and more line officers are performing cost-analysis functions. The Secretary of the Navy now has a group. The Chief of Naval Operations has his own group. The senior officers also know that this is the road to preferment. The various subordinate organizations have set up such groups. It is almost like computers talking to each other.

So you have officers who are not very experienced or competent technically getting into the cost-effectiveness game where they are now making highly complex technical recommendations. This is a real problem and our future military strength may depend on whether this issue is or is not handled properly. Believe me, I feel deeply about this matter.

SHIPBUILDING AND CONVERSION COST OVERRUNS

Mr. MAHON. Admiral, the shipbuilding and conversion, Navy authorization contains funds identified against prior year SCN overruns. Further, Secretary of Defense Laird in testimony to the Senate Armed Services Committee on March 19, 1969, informed the Congress that the naval shipbuilding program is overrunning its appropriated funds by over \$600 million. Would you please tell us what this is all about and whether any nuclear-powered ships are involved?

Admiral RICKOVER. Certainly, sir. In the period between January and March 1969, the Naval Ship Systems Command identified and reported an anticipated end cost of the ships remaining in the fiscal years 1961 through 1969 shipbuilding programs as of February 1, 1969, of

between \$600 and \$700 million more than the funds appropriated for these ships, conventional and nuclear. That is in addition to previous cost problems of about \$800 million which were resolved by reprogramming actions last year. Also, the many uncompleted ships, conventional and nuclear, in the fiscal years 1961-1969 programs, including ships being procured by new untried methods such as the DX and LHA classes, may, of course, encounter additional cost problems in the future.

The original line item estimated end costs approved by the Congress for the ships remaining in the fiscal year 1961 through fiscal year 1969 shipbuilding programs as of February 1, 1969, totaled about \$17.25 billion.

The currently estimated end cost of the same ships based on the same definition of end cost totals about \$17.4 billion.

Based on the ship cost adjustment review dated January 1969, of the shipbuilding and conversion, Navy account, called SCN, the Navy anticipates that further intensive review of unobligated and unexpended balances will recover \$100 million from the overall SCN program. Based on the assumption that this recovery will be achieved, the currently anticipated end cost of these ships is about \$17.3 billion.

Thus, it can be seen that the currently anticipated end cost of the fiscal year 1961 through fiscal year 1969 ships is almost the same as the originally estimated end cost of \$17.25 billion. The individual line items that were originally underestimated have just about balanced out with others that were originally overestimated—keeping the total almost constant. Thus, the current cost problem in the shipbuilding account did not derive from the original ship cost estimates prepared by the Navy being too low; rather, the cost problem derived from the fact that for various reasons the amount appropriated for the approved ships was less than the original cost estimate, and from the fact that the Navy has not been able to absorb the reduction in appropriations due to a number of factors, including unexpected technical difficulties and the rapid escalation in shipbuilding and component costs brought about by the market conditions caused by the Vietnam war.

In the first half of the 1960's the ships being contracted for by the Navy appeared to be costing less than the overall amount appropriated, and the total shipbuilding account appeared to have a surplus of funds. Some of this apparent surplus of shipbuilding funds occurred because the escalation reserves, which were budgeted at 13½ percent of the estimated shipbuilding contract price when the Navy first started the end-cost system for ship cost estimates in fiscal year 1961, were higher than required in the early 1960's. Each subsequent year the Navy reduced this percentage until it was down to 7½ percent for the fiscal year 1966, and later shipbuilding programs. Also, in the early 1960's some competitive awards of shipbuilding contracts were made for less than the amounts forecast in budget estimates and the Polaris program shipbuilding costs were running much less than the appropriated amounts. A competitive market existed in most of the shipbuilding and warship equipment industries, and shipbuilders and component vendors were accepting contracts at very low predicted profit levels.

Because of the surplus of appropriated shipbuilding funds that appeared to be available in the early 1960's, less than the total of the original line item estimates for the approved ships in the fiscal year 1961

through fiscal year 1969 programs was subsequently appropriated as the result of budget actions by the Navy, OSD, and Congress.

The appropriated funds available in the SCN account for the ships remaining in the fiscal year 1961-69 shipbuilding programs on February 1, 1969 have been short \$933 million below the original estimates and \$985 million below the currently anticipated end costs of the same ships thus creating a shortage of about 6 percent in the appropriated funds available in the SCN account for fiscal years 1961 through fiscal year 1969. Of the \$985 million shortage, \$389 million was caused by Navy volunteered reductions in estimates, \$353 million was caused by OSD imposed cuts, \$192 million was caused by additional congressional cuts in the funds appropriated for the approved ships, and \$51 million was caused by currently anticipated end costs exceeding the originally estimated end costs for the same ships.

As I have already pointed out, the original Navy cost estimates for the fiscal year 1961 through fiscal year 1969 shipbuilding programs as a whole are turning out to be quite realistic. The problem is that there are many factors preventing the Navy from building the approved ships in the fiscal year 1961 through fiscal year 1969 programs at a cost substantially under the original Navy estimates. I do not know how widely understood these factors are, but I have the impression that most of the senior officials in the Navy and the Department of Defense think that the major blame lies with the Naval Ship Systems Command because of "poor management" of the shipbuilding program.

Although NAVSHIPS must accept responsibility for some portion of the Navy's inability to absorb the shipbuilding fund reductions I have cited, they are not solely to blame. Many factors under the control of other Government groups and many factors totally outside the control of the Government contribute to the shipbuilding cost problem.

Some factors which have prevented the Navy from absorbing these cuts in the funds appropriated for the fiscal year 1961 through fiscal year 1969 shipbuilding programs without cancelling approved programs are:

(A) COST INCREASES IDENTIFIED IN SPECIFIC PROGRAMS

Over the last several years the shipbuilding account, in addition to being expected to absorb the fund cuts, has had to absorb several specific cost increases not contemplated in the original ship-cost estimates. The Navy has explained in detail the sources of these cost increases to OSD and Congress, but it has been assumed that the shipbuilding account would absorb the costs without additional new obligational authority. These include:

	Million
SUBSAFE program following loss of <i>Thresher</i>	\$261
That portion of the SON surface missile ship improvement program ("3T Get Well Program") funded from reduction in SON end-cost estimates...	119
Increase in estimated cost of <i>Nimitz</i> identified in fiscal year 1968.....	117
Increase in estimated cost of <i>Midway</i> conversion.....	115
Total	612

(B) ESCALATION

As I have previously noted, by fiscal year 1966 the Navy had reduced escalation reserves in new shipbuilding estimates to 7½ percent of the estimated shipbuilding contract price. It has been the practice not to include escalation reserves for Government-furnished equipment on the assumption that reduction due to learning and competitive procurement would offset inflation. These escalation assumptions were generally valid in the first half of the 1960's but starting about calendar year 1965 with the rapidly escalating expansion of the Vietnam war, a marked increase was started in escalation of material and labor costs throughout the country. Not only has the annual rate of escalation increased markedly, but procurement schedules of components and ships have lengthened because of higher priority war work and the shortage of available manufacturing capacity in a booming civilian market, thus compounding the effect of escalation on ship costs. Further, component manufacturers and shipbuilders from 1965 to the present time have increased their profit percentages substantially—in many cases more than doubling them.

Shipbuilding program budget cost estimates, which are prepared about 18 months prior to congressional budget approval and 2 to 3 years before ship contract award, have not reflected these unexpected increases in shipbuilding costs which have significantly affected uncompleted ships in the fiscal year 1963 and later shipbuilding programs. There was no way for NAVSHIPS to predict these increased cost factors prior to 1965 when the fiscal year 1967 budget was being prepared. NAVSHIPS should have, but did not, recognize the degree of the escalating cost trend in time to allow for these cost increases in the fiscal year 1968 program budget estimates. In preparing the fiscal year 1969 budget, NAVSHIPS tried to get approval for higher escalation reserves; however, the Navy Comptroller would not agree to it, and thus it was not presented to OSD. In preparing the fiscal year 1970 shipbuilding budget, the Navy Comptroller agreed with NAVSHIPS on the need for higher escalation reserves, but the OSD Comptroller would not approve increasing the escalation reserves. Therefore, NAVSHIPS is still faced with under funding escalation reserves for uncompleted ships in the fiscal year 1969 and future shipbuilding programs because of OSD Comptroller requirements.

(C) NAVAL SHIPYARD COST INCREASES

About \$100 million of the cost problem is due to higher than estimated cost for naval shipyard work. Some significant fraction of this has been caused by delay and disruption of new construction and conversion due to urgent requirements placed on naval shipyards to meet Southeast Asia commitments from the Vietnam war concurrent with employment ceiling restrictions on the naval shipyards. Delay of new construction and conversion, of course, forces the work into a later time frame than planned, thus increasing costs due to labor and material cost escalation. One specific example of this was the case of the battleship *New Jersey*. In this case, the Navy specifically identified to OSD cost increases due to delays in other work and requested \$4 million to pay for the increases; however, the funds were not provided.

(D) SHIPBUILDER DELAY CLAIMS DUE TO LATE GOVERNMENT-FURNISHED EQUIPMENT AND INFORMATION

Some significant fraction of the total SCN cost problem is caused by delay claims from shipbuilders due to late Government-furnished equipment and information. Government-furnished equipment and information are often late due to many causes such as: deferrals due to higher priority commitments of the Vietnam war; deferrals due to general shortage of design and production capacity in a booming civilian market; changes in designs resulting from development programs, strikes in vendor plants—which also lead to increased component costs—late release of long leadtime funds by OSD, poor vendor performance, and inadequate attention on the part of Navy officials responsible for the procurement of equipment. Some of this equipment is procured by NAVSHIPS and some by other Systems Commands.

(E) GOVERNMENT SELF-INSURANCE

The Government is its own insurance agent for unexpected hazards and accidents and has to pay resulting claims. For example, the fire in the Tacoma Yard which destroyed three PGM's and the fire which damaged the submarine *Haddock* at the Ingalls Yard in Pascagoula led to insurance claims. Also events such as New York Shipbuilding Corp. going out of business which forced the Navy to use a more expensive means to complete the submarine *Pogy* add to shipbuilding costs.

Also strikes in shipyards lead to shipbuilder delay and escalation claims which the Navy has to pay.

(F) CHANGES

One major source of cost increases has been changes in ship specifications and in ship equipments after preparation of budget estimates. In addition to the actual cost of the changes, shipbuilders often submit claims for costs due to the disruptive effect of changes on an orderly ship construction schedule and resulting delays. Some allowance is made in the original shipbuilding estimates for changes; however, experience has shown that in recent years these allowances have not been adequate to cover the cost increases. To my knowledge, there is no adequate summary to show what fraction of the SCN cost problem is due to such changes nor is there a "hindsight" analysis to determine whether the changes involved were in fact mandatory or not, and what organization bears the responsibility for having decided to have the changes.

There is no question that the rapidly changing technology forces the Navy to initiate many changes in a ship from the time the original budget estimate is made—usually before the ship design is complete and often before even preliminary characteristics have been approved—and the time—some 7 years later—when the ship is delivered and its actual construction cost has been determined.

(G) COMPLEXITY OF MODERN WARSHIPS

The tremendous increase in complexity of almost all systems in a modern warship has greatly increased the requirement for precisely

worded specifications which on the one hand will define all requirements and on other hand will not introduce unneeded costs. Further, many new general requirements have been initiated in recent years, a number of them required by OSD, which attempt to legislate "doing the job right." These requirements are often referred to as the "ilities" since they say good words about reliability, maintainability, accessibility, supportability," and so forth. No ships have yet been completed with a full package of "ilities" included in the contract so that we do not yet have any real knowledge of what these requirements are going to cost us. It is, of course, hoped that by making an initial investment in the ship to build it "right" in the first place, its overall life cycle cost will be reduced. This remains to be proven. Virtually all levels of Pentagon management have made an input into the "ilities" requirements. The people setting these requirements have had practically no responsibility for building the ships or meeting budget cost estimates.

Prior to a complete review of the SCN account by the Navy and OSD in March 1969, \$316 million of the \$985 million SCN deficit had been recognized and taken care of by such steps as redefining end cost to exclude outfitting costs, reducing the characteristics of LPD's, and cancellation of three DE's, five MSO's, the advanced procurement funds for DLGN38, and three DD ASW conversions.

This left an SCN appropriation deficit identified in early March 1969 of \$669 million.

Review of the SCN account by the new administration has led to recent cancellations of other Navy work totaling about \$350 million to offset the shortage of appropriated SCN funds now expected to mature before June 30, 1970. These cancellations were reported in Secretary Laird's statement of March 19, 1969, to which you referred, Mr. Chairman. Since these ships were canceled after February 1, 1969, their estimated cost is included in the SCN total estimates I gave you.

This action has left a currently identified SCN shortage of appropriated funds of \$319 million. Consideration is being given to handling this remaining deficit by further ship cancellations totaling \$104 million and by providing line items in the fiscal year 1971 and 1972 budgets for "Cost increases and prospective claims," totaling \$215 million.

It is indeed unfortunate that the Navy has not been able to absorb the shipbuilding fund cuts for approved ships that the Navy itself, OSD, and the Congress have levied against the SCN account, without having to resort to cancellation of approved programs to make funds available. However, in view of the very long time span between budget preparation and ship completion; the tremendous complexity of our continuously changing warship technology which requires utilization of almost every section of U.S. industry; the very large number of organizations within the Navy and OSD whose actions can affect ship characteristics, specifications, and costs; the continuing rapid escalation of almost all costs in the U.S. economy; and the lack of adequate numbers of properly qualified permanent technical personnel within the Systems Commands to control the work; I am not surprised that shipbuilding fund shortages have arisen. I expect that before the ships in the fiscal year 1961 through 1969 shipbuilding programs are complete, additional fund shortages will arise.

There is currently a great deal of talk about improved management, better cost estimating, and "holding managers' feet to the fire" to deliver hardware at the budgeted cost. Frankly I don't expect these efforts to improve the situation much. They don't get to the heart of the cost overrun problem.

IMPROVEMENT OF MILITARY PROCUREMENT

Mr. MAHON. There is great concern in Congress over the way the Pentagon spends its money. The military people and the Congress itself are somewhat under attack because of the magnitude of expenditures in the defense area. There are many complaints about poor management. We have reports of cost overruns and inadequate management of contracts generally.

I would like your opinion and advice with regard to problems in contracting for defense equipment. I know that you have considerable experience in this area, and that you have been forthright and candid in discussing these issues before congressional committees.

I would like you to suggest what this committee might possibly do at this time to improve military procurement.

Admiral RICKOVER. Thank you, Mr. Chairman.

I am an engineer; the people on my staff are mostly engineers, metallurgists, and physicists. Yet much of my time, and theirs as well, is taken up by procurement problems that arise because defense procurement regulations are inadequate or not adequately enforced. Thus, I am concerned about defense procurement problems because they distract me and my staff from our primary duty, which is the development and application of nuclear power for naval ships.

In addition, I am disturbed about the immense waste that results from the Pentagon's lack of control over its contracting operations. Defense procurement amounts to more than \$44 billion a year—nearly one-fourth of the Federal Government's total budget. Loose regulations and lax procedures in this massive program are causing the waste of billions of dollars each year. We are not getting what we should for the money we spend.

What is the reason for this state of affairs? One major cause, I think, is that we have been unwilling to face some of the hard realities of military purchasing in this technological age. For years the ranking procurement officials in the Department of Defense have tried to sustain the belief that the defense industry is a wide open, highly competitive market. In actual fact, the opposite has been the case.

The defense industry in fact is highly concentrated. Most of the Pentagon's business is awarded to a small number of giant firms. In fiscal year 1968, for example, 30 percent of all defense business was awarded to just 10 companies. Over two-thirds of all defense business has, for many years, gone to just 100 contractors. Because of the highly complex technology and expensive facilities required for weapons production, it is difficult for new firms to break into the defense market. Hence, most of the defense procurement dollars go to the same large companies year after year. Of the top 25 defense contractors last year, 18 were among the top 25, 10 years ago.

In addition, almost all defense procurement—with the possible exception of items like food and clothing—is noncompetitive.

Mr. MAHON. Do you think it is inevitable that it has to be noncompetitive?

Admiral RICKOVER. I don't like saying this, but we are necessarily in that fix. As I said, there are not many companies that can muster the scientific, engineering, manufacturing, and financial resources required to perform multimillion-dollar defense contracts. Among the few that can, there is little or no true competition to hold prices down. Here are some statistics for fiscal year 1968 that point this out graphically:

[Dollar amounts in billions]

	Amount	Percent
Total defense procurement.....	\$43.8	100.0
Advertised competitive.....	4.9	11.5
"Competitive negotiated".....	13.5	30.6
Sole-source procurement.....	25.4	57.9

Under these circumstances—high concentration and low competition—cost is the primary consideration in determining how much the Government must pay for its equipment. I am not talking about small contracts involving small or medium-sized companies. I am talking about large contracts with the huge, multi-divisional weapons makers who receive billions of dollars worth of defense contracts each year. The free market forces that protect the consumer in commercial markets are not present to protect the Government when it deals with these large firms. Yet the Defense Department has not taken adequate steps to protect itself.

To give an example: the Department of Defense exerts almost no control over subcontracting even though it estimates that about 50 percent of the total value of all prime contracts is subcontracted. Its philosophy seems rather to be to "trust the prime contractor" to subcontract on an economical basis. On the basis of my years of experience in procuring equipment for the naval reactors program, I would say that this philosophy just does not work.

Moreover, although cost—not competition—is the major determinant in pricing military equipment, the Department of Defense does not set uniform standards for costs on its contracts. The cost principles that do exist in the Armed Services Procurement Regulations are mandatory for fewer than one fourth of all defense contracts.

Further, the legislative and administrative regulations which have been established to protect the Department of Defense have many loopholes and are not properly policed. Consequently, they have not been effective.

In the absence of standards and supervision, the Department of Defense has tried to gain some measure of control over its procurements through new types of contract. The recent Secretary of Defense was the prime mover in this effort. You may remember, Mr. Chairman, he was opposed to cost-plus-fixed-fee contracts, and he established various forms of contracts which were intended to give contractors greater incentive to control costs.

Unfortunately, this effort has not succeeded. Because there is almost no competition on defense contracts, and because contractors can make up cost overruns through "escape valves" such as price increases,

change orders, and claims, practically all contracts for military equipment today are cost-plus in practice.

Because there are so many escape valves for the contractors in defense procurement, the fundamental concept of a contract seems to have disappeared. The word "contract" comes from a Latin root meaning "to bind together", and that is what a contract should do—bind two parties to an agreement. In current practice, however, it seems to me that the Government is the only party that is bound. Contractors can with impunity overrun costs, produce below specifications, and miss delivery schedules.

Mr. Chairman, you asked who can correct this situation. There are three places where something can be done. First, the Department of Defense could take action to resolve its own procurement problems. But my experience has been that it will not do so. This being so, we should be able to turn to the General Accounting Office; but I am afraid little will be done there, either. The General Accounting Office has relegated to itself relatively minor matters, in an attempt to avoid controversy. It appears unwilling to undertake important issues except at the specific request or direction of Congress.

With both the Department of Defense and the General Accounting Office essentially abdicating their responsibility in this regard, the burden must fall on Congress. Congress will have to take the initiative to see that defense procurement practices are put on a sound, economical basis.

The primary function of all modern legislative assemblies is law-making. But in the United States, the Congress is more than a mere lawmaking body. It also performs the important function of overseeing the administration of the law by the executive agencies, and it exercises control over national finances through taxation and appropriation. Through committee hearings on appropriations, such as yours, and also through the work of other committees, the executive agencies are from time to time subjected to congressional supervisory control. I believe it is not inappropriate in this connection, sir, to remind you respectfully that Woodrow Wilson, who was probably the most famous student of Congress, referred to congressional committees as "little legislatures".

If the conduct of government is looked upon as similar to the business of a large corporation, then the function of Congress is analogous to that of the board of directors. John Stuart Mill considered this function of administrative oversight more significant than that of law-making. He said:

The proper office of a representative assembly is to watch and control the government; to throw off publicity on its acts; to compel a full exposition and justification of all of them which anyone considers questionable; to censure them if found condemnable, and if the men who compose the government abuse their trust, or fulfill it in a manner which conflicts with the deliberate sense of the nation, to expel them from office and either expressly or virtually appoint their successors.

In my testimony today, I would like to describe the problems in defense procurement and to make specific recommendations as to what you as Members of Congress, and especially this committee—because it has the power of the purse—can do to correct the situation.

INCREASED COST OF SHIPS

Mr. MAHON. Admiral, the recurring theme in our appropriations hearings this year has been rising costs. We're heard about costs going up on everything from bullets to jet planes. One of the areas where costs have gone up most steeply is ships. I wish you would tell us your feelings on this point. What are the reasons? What can we do?

Admiral RICKOVER. For many years now, Mr. Chairman, the cost of building naval ships has been increasing substantially. These large-cost increases have been attributed to inflation, Government inspection requirements, unforeseen-developments, inefficiency, and so on. The reasons typically given would place them beyond anyone's control.

I have thought that one reason for higher shipbuilding costs could be traced to poor procurement practices under shipbuilding contracts. I looked into this and I found many deficiencies that are costly to the Government. One shipbuilder was not complying with the Truth-in-Negotiations Act 7 years after the law had been enacted. Subcontracts were being awarded in noncompetitive and sometimes sole-source situations where the prime contractor had not obtained or reviewed the supplier's cost estimates. Contractor personnel in charge of shipyard procurement did not seem knowledgeable of the requirements of the Truth-in-Negotiations Act or of the way the requirements were supposed to be implemented. They did not seem to know how to analyze a supplier's cost estimates, even when such estimates were obtained. Negotiations, if conducted at all, were perfunctory and were not based on an analysis of the supplier's cost estimates. The ship builder recommended without question prices much higher than he had paid on prior orders. On a closer look, these prices included substantial amounts for unwarranted contingencies and admitted profits in the range of 25 to 33 percent.

Mr. MAHON. Do you have facts to back this up?

Admiral RICKOVER. I do, sir. I reviewed the procurements myself. In one case, a shipbuilder proposed to pay \$311,000 for pumps required under a shipbuilding contract. This was an increase of 30 percent over the highest price he had paid previously for the same pumps; it was twice the price he paid just 5 years before. Although the shipbuilder had received only one bid, he did not obtain and evaluate the supplier's cost and pricing data as required by the Truth-in-Negotiations Act. I insisted that he obtain and review the supplier's cost and pricing data. I also reviewed the technical requirements the supplier was being asked to meet. As a result, the price was reduced by about \$85,000. The final price still provided the supplier a substantial profit.

In another case, the shipbuilder recommended a price that gave the supplier 33-percent profit on his estimated cost. The shipbuilder pointed out that the profit had been negotiated down from 46 percent. I said the profit was still too high. I asked for a Government audit and asked the shipbuilder to try to negotiate a lower price. The audit showed that in several areas the supplier's estimated costs were higher than could be supported by his books, so the supplier had a good chance to make a profit even higher than the 33 percent he admitted to in his cost breakdown.

The shipbuilder tried to negotiate with the supplier but was unable to obtain a lower price. The supplier simply submitted a new cost

breakdown showing lower profit, higher costs, but the same total price. This shows the incredible flexibility contractors have in accounting for costs.

In another case, a shipbuilder recommended approval of a \$216,000 subcontract for pumps with a sole-source supplier. The subcontractor initially refused to provide the cost data required by law. Finally he acquiesced. His cost breakdown indicated a 25-percent profit on estimated costs, and several unsubstantiated contingency allowances that could have given him a total profit in excess of 50 percent, should the contingencies not occur. Based on the subcontractor's cost data, the price for the pumps was negotiated down from \$216,000 to \$176,000. This price was still substantially higher than the Navy estimate.

Mr. MINSHALL. These should be brought directly to the attention of the Secretary. I am sure he will do something about it.

Admiral RICKOVER. I have brought these issues to the attention of my superiors time and again. In fact, I carried on extensive correspondence about this pump procurement with the Assistant Secretary of the Navy for Installations and Logistics.

Mr. MINSHALL. When did you do this?

Admiral RICKOVER. I first discussed this particular case in a memorandum I sent him in November 1968. I pointed out that the pump procurement was indicative of the problems I was encountering in reviewing shipyard procurements. His response was to request a study of this problem by the Naval Material Command. I followed the November memorandum with several more communications on the same subject.

Mr. MINSHALL. But not to the new administration.

Admiral RICKOVER. I brought this to the attention of the new administration in memorandums dated February 12, 1969, and March 28, 1969. In February I advised the Assistant Secretary of the problems I faced in trying to place the pump order and urged that he give the overall procurement problem at shipyards his personal attention. In March I again pointed out that the need for the Navy to improve shipbuilder procurement practices promptly, without waiting for completion of the Naval Material Command study, since many major problems were evident. In the March memorandum I also asked for any assistance the Naval Material Command would provide in getting a more reasonable price for the pump procurement. Of course, this was just one procurement, and a relatively small one at that. But it was indicative of a serious malaise involving millions of dollars in every shipbuilding contract. Consequently, I thought it was important that the Navy take positive action in this case.

Mr. MINSHALL. What action has been taken as a result of your letters?

Admiral RICKOVER. With regard to the pump procurement, the Naval Material Command was not able to negotiate a lower price or to reduce the profit and the contingencies in the price. However, they did get the supplier's agreement to refund any profits he might make on this order in excess of 20 percent.

With regard to the overall problem, the Naval Material Command conducted a detailed study into the issues I had raised, as requested by the Assistant Secretary. The Chief of Naval Material confirmed what I had reported.

Mr. MINSHALL. Has any action been taken to resolve the problem?
Admiral RICKOVER. Some action was taken, but this problem is far from being resolved.

Mr. MINSHALL. I have no more questions other than to say that I know the Secretary has found a Pandora's box of problems.

Mr. MAHON. I would like you to provide us your correspondence with the Assistant Secretary regarding this shipbuilder procurement problem. I would also like a copy of the Chief of Naval Material's report to the Secretary regarding the issues you raised.

Admiral RICKOVER. Yes, sir.
(The information follows:)

13 Nov. 1968.

MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE NAVY (INSTALLATIONS AND LOGISTICS)

Subject: Need for improvements in ship procurement practices.

Enclosure: (1) Examples of recent procurements recommended by shipbuilders but which were overpriced.

1. The rising cost of naval ship construction has been a matter of considerable concern to the Navy. I believe that a large portion of the price increase in the Navy's shipbuilding program results from poor contracting practices.

2. There is little or no real price competition for shipbuilding contracts or for complex equipment that shipbuilders buy. However, for many years, the Navy has awarded shipbuilding contracts, and shipbuilders have awarded subcontracts, on the basis of "adequate competition."

3. Early this year, Navy procurement officials recommended awarding the DLGN 36-37 ship construction contract without negotiating because they considered the competition obtained from two bidders adequate, even though NAVSHIPS technical and project personnel found numerous indications that the low bidder's price was excessive. Ultimately, NAVSHIPS obtained permission to negotiate the price. Through negotiations, the low bidder's base price was reduced by \$27 million.

4. Enclosure (1) contains several recent examples of shipbuilder procurement that indicate the inadequacy of the Navy's present procedures for insuring reasonable prices for the Government under shipbuilding contracts. These examples were discovered because I require specific NAVSHIPS review and approval of major subcontracts for equipment under my technical cognizance. Normally, the Navy does not review subcontracts on a case-by-case basis. Instead, the Navy approves a shipbuilder's procurement system and then relies on the approved procurement system to obtain reasonable prices for the Government. From what I have seen, this procedure has not been effective.

5. Because competition for major ship construction contracts is limited, ship prices are influenced more by historical costs than by competitive market pressures. Since shipbuilders base their quotes on subcontractor bids, they have little incentive to negotiate lower prices after they receive a contract. In the long run, higher cost bases will generate higher profits, since profits are generally established as percentages of estimated cost.

6. I believe that the Navy should face up to the lack of true competition in the shipbuilding industry and amend the suppliers of shipboard equipment. Competition in this field is an exception—not the rule.

7. I recommend that you initiate a review of shipbuilding procurement practices, placing particular emphasis on the lack of true competition available, both at the prime contract and subcontract levels and on the depth of contractor and government review being performed on these procurements. If carried out effectively, such a review should lead to improvements that could save the taxpayer many millions of dollars each year. Pending completion of this review, I recommend that you require specific Navy review and consent to all subcontracts in excess of \$100,000 under cost reimbursement and incentive type contracts.

8. If I can be of further assistance, please let me know.

H. G. RICKOVER,
Deputy Commander for
Nuclear Propulsion.

EXAMPLES OF RECENT PROCUREMENTS RECOMMENDED BY SHIPBUILDERS BUT WHICH WERE OVERPRICED

I. Main circulating sea water pump procurement

On May 17, 1968, shipbuilder A requested NAVSHIPS approval to procure main circulating sea water pumps from the only bidder of seven companies solicited. The proposed price for these pumps was \$311,000—about \$75,000 more than shipbuilder A paid in February 1967 for similar pumps used in construction of another type ship and about \$152,000 more than was paid for pumps bought in 1964 for the same type ship. Shipbuilder A recommended the \$311,000 price as reasonable based on increased technical requirements and known price escalation. He did not obtain and evaluate the suppliers' cost and pricing data as required by Public Law 87-653.

NAVSHIPS disapproved the proposed subcontract and asked shipbuilder A to obtain and evaluate the supplier's cost data to insure that the price was reasonable. This data showed that the price of \$311,000 would provide the pump supplier a \$43,000 profit on direct labor costs of \$4,707, subcontracts and materials totaling \$213,387, and other costs, including sales expense, G. & A. and interest, totaling \$50,694. Based on the suppliers' cost data, shipbuilder A negotiated a price of \$228,000 which was about the same price paid for similar pumps purchased 128 months earlier. The negotiated reduction of about \$85,000 consisted of a reduction in price, including profit, of about \$45,000 and a reduction of about \$40,000 in resolution of technical requirements. However, the reduced price still provided the pump supplier a profit of about 10 percent on his total costs and about 45 percent on his "in-house" costs. Without special review by NAVSHIPS, shipbuilder A would have placed this order as a competitive deal and the cost to the Government would have been \$85,000, or about 35 percent, higher.

II. Motor generator set and voltage regulator procurement

On August 14, 1968, shipbuilder A requested NAVSHIPS approval to place a firm price contract for motor generator sets and voltage regulators at a price of \$513,488, including \$122,500 for the voltage regulators. The supplier's cost breakdown indicated that the price of \$122,500 for the voltage regulators included a 33-percent profit on cost—a profit two or three times higher than would normally be paid under ASPR guidelines. In their submission to NAVSHIPS, shipbuilder A stated that his profit was considered reasonable since the items were "high risk" and the profit had been negotiated downward from 46 percent.

NAVSHIPS disapproved the proposed procurement. Shipbuilder A was requested to initiate an audit of the suppliers' cost breakdown and negotiate a more reasonable price. Shipbuilder A subsequently advised NAVSHIPS that the preliminary audit report indicated questions relative to labor and material man-hours. However, shipbuilder A recommended placement at the price originally offered by the supplier since the supplier had indicated his total price was final and not subject for further negotiation. With respect to the high profits, shipbuilder A insisted that the supplier was submitting a new cost breakdown to show higher costs, lower profit, and the same price. On this basis, shipbuilder A stated:

"In view of the competitive nature of this procurement, our evaluation of the reasonableness of the total price quoted and the urgent necessity for early placement of the order, we recommend that the contracting officer give us his consent to procure these sets from _____ at the total price of \$518,488 as well as the stock components at a total price of \$161,409, without waiting for the revised cost breakdown or the final audit report from DCAA. Attention is again called to the (supplier's name) position that the total price for these sets will not be reduced.

This procurement is still pending.

III. Main sea water pump procurement

Shipbuilder B recommended that NAVSHIPS consent to a \$210,000 subcontract for main sea water pumps for which there was only one source.

Initially, the supplier refused to provide the cost data required by Public Law 87-653. NAVSHIPS insisted that shipbuilder B obtain the required cost data. The supplier finally acquiesced. A Government audit of the supplier's cost breakdown showed the following:

- (1) A 25-percent profit on his estimated costs.

(2) His cost estimate included \$84,000 of other costs the Government auditor considered questionable. He added a 20-percent factor to material costs, factory labor, and factory overhead costs to provide an allowance for possible defective work. A 10-percent factor was then added to each cost element for possible cost increases during the 2-year period of contract performance. A 20-percent factor was then applied to the total cost less general and administrative expenses to compensate for the risks of Government inspection. The Government auditor could not obtain data to support these mark-up factors.

(3) The price included a \$68,000 subcontract with another division of shipbuilder B's parent corporation. This firm declined to furnish cost and pricing data to the pump supplier, the shipbuilder or the Government because the procurement was less than \$100,000. Although this procurement was less than \$100,000, the Navy's aggregate procurement of such motors from this firm, either directly or as a lower tier supplier, constitutes a very large sum since this firm is the Navy's leading supplier of quiet pump motors.

Shipbuilder B has been told to continue negotiations in order to obtain a more reasonable price and to obtain and provide data necessary to justify the reasonableness of the price. This procurement is still pending.

THE ASSISTANT SECRETARY OF THE NAVY,
(INSTALLATIONS AND LOGISTICS),
Washington, D.C., November 25, 1968.

Memorandum for Vice Admiral Rickover, U.S. Navy.

Subject: Ship Procurement Practices.

Reference is made to my memo of November 20, 1968, and our telephone conversation of this date relative to this subject. Apparently there has been some misunderstanding relative to the intent of my memo. I am primarily concerned with the SCN pricing and cost control study group encompassing ship procurement practices in their study efforts rather than starting an additional review effort. While it is not necessary that there be participation from your organization I would like to hope that the study group can call on your organization for assistance and advice as necessary in order to make their efforts as meaningful as possible.

BARRY J. SHILLITO.

DEPARTMENT OF THE NAVY,
NAVAL SHIP SYSTEMS COMMAND,
Washington D.O., February 12, 1969.

Memorandum for the Assistant Secretary of the Navy (Installations and Logistics).

Subject: SSN685—Electric Drive Submarine—Procurement of Main Sea Water Pumps.

Reference: (a) NAVSHIPS memorandum ser. 08H-370 dated Nov. 13, 1968;
(b) ASN (I&L) memorandum dated Nov. 20, 1968.

1. In reference (a), I advised the Assistant Secretary of the Navy for Installations and Logistics that I believed a large portion of the price increase in the Navy's shipbuilding program resulted from poor contracting practices. I described several recent examples of shipbuilder procurements that indicated the inadequacy of the Navy's present procedures for ensuring reasonable prices for the Government under shipbuilding contracts. In reference (b), Assistant Secretary Shillito said that my memorandum to him, reference (a), had been read with a great deal of interest. He said the entire matter of SCN pricing was being covered by a study headed up by Rear Admiral Sonenshein.

2. One of the examples given in reference (a) was the procurement of the main sea water pumps for the Electric Drive Submarine (SSN685). The sole source pump supplier initially refused to provide the cost data required by Public Law 87-653, yet the shipbuilder recommended NAVSHIPS consent to placing the order. I insisted that the shipbuilder obtain the cost data; this data showed that the price included excessive costs, unwarranted cost contingencies, and an excessive profit percentage on these excessive costs. I told the shipbuilder to continue negotiations in order to obtain a more reasonable price. The details are given in reference (a).

3. The initial price from the pump supplier was \$262,340. During initial negotiations the shipbuilder obtained a price of \$216,000 and recommended that NAVSHIPS consent to placing the order at this price. Following my insistence that cost data be obtained and further negotiations be conducted, the shipbuilder obtained a price of \$176,800. The shipbuilder has advised NAVSHIPS that although this price is still too high it is the best he can obtain. The shipbuilder has recommended that NAVSHIPS consent to placing the order at this price.

4. The latest proposed price of \$176,800 is still more than these pumps should cost. A large part of the unwarranted cost contingencies identified when the cost data was first submitted is still included in the price. As a result, the potential for excessive profit remains. However, we cannot delay further in placing this order. Negotiations have already been underway for more than a year and the order must now be placed so that late delivery of these pumps does not delay delivery of the electric drive submarine itself. I have no choice but to agree to order placement at a price of \$176,800.

5. In reference (a), I made specific recommendations for improvements in ship procurement practices. I know of no action which has been taken to implement my recommendations. The latest developments on this procurement of the main sea water pumps for the electric drive submarine is a further example of the need for action. I strongly urge you give this matter your personal attention.

H. G. RICKOVER.

DEPARTMENT OF THE NAVY,
OFFICE OF THE SECRETARY,
Washington, D.O., March 17, 1969.

Memorandum for Vice Adm. H. G. Rickover.

Subject: Ship Procurement Practices.

1. This is in response to your memorandum of February 12, 1969, regarding procurement of components for the electric drive submarine. I am pleased to note that your efforts, and those of the Naval Ship Systems Command, have resulted in substantial reduction of the price proposed for the main sea water pumps. I am concerned, as you are, that maximum attention is paid of the subcontract area in our procurement process.

2. You also indicated that you knew of no action which had been taken to implement recommendations you had previously made with respect to ship procurement practices. However, as indicated in Mr. Shillito's memorandum of November 20, 1968, the matter of a subcontract structure in ship procurement has been incorporated as part of the study being conducted by the SCN Pricing and Cost Control Study Group, headed by Rear Admiral Sonenshein. The results of the subcontract review efforts to date indicate that there are several areas where improvements can be made. I had hoped to be more specific in my response by now but believe it appropriate that the entire study and all its conclusions be reviewed so that coordinated action may be taken on the recommendations. I look forward to an opportunity to discuss this study with you as soon as it has been completed.

3. Your continued interest is appreciated. As noted above, I want to discuss this matter in some detail with you. I would ask also for the cooperation of your staff in assisting in the study efforts underway in the naval material organization.

FRANK SANDERS,
Assistant Secretary of the Navy,
(Installations and Logistics).

DEPARTMENT OF THE NAVY,
NAVAL SHIP SYSTEMS COMMAND,
Washington, D.O., March 28, 1969.

Memorandum for the Assistant Secretary of the Navy for Installations and Logistics (I&L).

Subject: SSN685—Electric drive submarine—procurement of main sea water pumps.

1. My memorandum to you of February 12, 1969, summarized problems I am encountering in procuring the main sea water pumps for the electric drive submarine. I sent you that memorandum as a first hand example of the Navy being forced to pay excessive prices because of inadequacies in present ship procurement practices.

2. In response, your memorandum dated March 17, 1960, stated that you want to discuss this matter with me in some detail, but after the Naval Material Command has completed a study of SCN pricing and cost control since the Naval Materials Command study group had also found areas of subcontracting where improvements could be made. You requested the cooperation of my staff in assisting the study efforts underway in the Naval Material Command.

3. The procurement of main sea water pumps for the electric drive submarine is an excellent example of why Navy ships cost more than they should. As pointed out in my previous memoranda on this procurement:

(a) NAVSHIPS estimated these pumps should cost about \$110,000 based on a previous procurement of the same design pump.

(b) The sole-source pump supplier initially quoted a price of \$262,340.

(c) The shipbuilder conducted negotiations with the pump supplier; the price was reduced to \$216,000.

(d) NAVSHIPS did not accept this price and required the shipbuilder to obtain and evaluate the pump supplier's cost data; the price was further reduced to \$176,800.

4. This is a low-risk job for the pump supplier. The pump castings, which were the high-risk items on previous procurements of this design pump, will be provided by the shipbuilder. In addition, the pump supplier has added a 20-percent contingency factor, which NAVSHIPS considers unwarranted, to his estimated costs to compensate for the risks of Government inspection. The motor, which is 45 percent of the supplier's basic estimated cost, is to be subcontracted on a firm fixed-price basis. The motor subcontract is with another division of the shipbuilder's parent corporation.

5. Despite the low risk, the current price of \$176,800 provides substantial profit to all contractors involved. The pump supplier has added a 20-percent profit to his total estimated costs, which include the cost of the subcontracted motor. If the contingency for Government inspection, as explained in paragraph 3 above, does not materialize, the pump supplier could realize a profit of more than 40 percent. The shipbuilder's parent corporation gets a double profit in this procurement—a profit on the price paid for the pumps under the shipbuilding contract and, in the \$176,800 pump price, an additional profit paid to the division that sells the motors to the pump supplier.

6. My experience is that procurements such as this are commonplace under shipbuilding contracts. Competition is generally limited, yet shipbuilders seldom negotiate or effectively analyze supplier costs. The Truth-in-Negotiations Act has not been properly implemented by shipbuilders. Frequently, the subcontracts provide much higher profits than can be justified under the Department of Defense weighted guidelines method of profit computation. I believe this situation is evident without the necessity of a Naval Material Command study. The Navy can and should take prompt action to correct these deficiencies.

7. In view of your request that I cooperate with the Chief of Naval Material in this matter, I request, by copy of this letter, any assistance he can provide with respect to the procurement of these main sea water pumps for the electric drive submarine. The order must be placed without delay so that the ship delivery schedule will not be delayed.

8. The problem facing the Navy in its ship procurement practices is an urgent one and leads to higher costs than necessary. Recent public statements by the Secretary of Defense indicate his dissatisfaction with the Navy's management of its shipbuilding programs and with the delays and cost increases of these programs. Various congressional committees have also indicated that an investigation of the high price of Navy ships is in order. The Navy shipbuilding programs may be curtailed if shipbuilder procurement practices are not improved promptly and substantially.

9. I believe the matter is of sufficient importance to warrant your personal attention and direction.

H. G. RICKOVER,
Deputy Commander for Nuclear Propulsion.

DEPARTMENT OF THE NAVY,
HEADQUARTERS NAVAL MATERIAL COMMAND,
Washington, D.C. May 7, 1969.

Memorandum for Vice Adm. H. G. Rickover, U.S. Navy.

Subject: Electric drive submarine—procurement of main sea water pumps.

1. I regret the delay in arriving at a resolution of the problems discussed in your memorandum of March 28, 1969.

2. The subcontractor has agreed to provide a certified "after the fact" cost of the procurement of subject pumps. He has also agreed to refund to the Government any costs which are less than those certified in his submission prior to contract. The later submission will be certified in accordance with Public Law 87-653.

3. The contractor would not agree to a lesser profit rate on the subcontract. The matter of profits on the motor purchased from a division of the prime contractor will be the subject of discussions and negotiations with the prime at the time of settlement of the basic contract.

4. Although this resolution is not a completely satisfactory one, the agreement for "after the fact" cost information, the substantial decrease in price negotiated prior to your request for my assistance, and the stated urgency of the procurement are considered sufficient bases for granting consent to this subcontract.

I. J. GALANTIN,
Admiral, U.S. Navy, Chief of Naval Material.

DEPARTMENT OF THE NAVY,
HEADQUARTERS NAVAL MATERIAL COMMAND,
Washington, D.C., May 15, 1969.

Memorandum for the Assistant Secretary of the Navy (Installations and Logistics).

Subject: Subcontracts in ship procurement.

Reference: (a) ASN(I&L) Memo of April 4, 1969, Subject: SSN-685—Electric drive submarine—procurement of main sea water pumps.

Enclosure: (1) Copy of ONM memo to Vice Admiral Rickover dated May 7, 1969.

1. Enclosure (1) indicates the final terms negotiated for the main sea water pump subcontract.

2. The problem of subcontract pricing and management has been of serious concern, particularly as the trend toward performance specifications tends to lessen the amount of GFE procurement. While subcontracts are a small portion of the end cost of a ship, they amount to between 40 percent to 70 percent of our prime contract with the shipbuilder.

3. As a result of this concern I directed a study of shipbuilding subcontracting (nonnuclear) in the case to two major contractors. These studies are attached as tabs A and B. The significant results of these studies are as follows:

(a) A significant portion of shipbuilding subcontracts are noncompetitive (whether considering price or technical competition).

(b) Adequate pricing data is not being obtained on those subcontracts.

(c) Less than adequate effort is being made by prime contractors to:

(1) Insure adequate competition.

(2) Perform adequate price analysis and conduct adequate negotiations.

(d) Bid prices on ships are in fact inflated by the sole-source nature of many of the major subcontracts.

(e) Adequate emphasis is not being placed on Public Law 87-653 (Truth in Negotiations Act) and subcontract management by prime shipbuilding contracts.

These results are borne out, I believe, by a similar review performed by Vice Admiral Rickover in the nuclear area.

4. There are several specific recommendations which should be implemented:

(a) A requirement for review and consent by the Government to major subcontracts (over \$100,000) must be included in all major shipbuilding contracts, regardless of type.

(b) The ASPR requirement for use of the CPSR (Contractor Procurement System Review) to approve a contractor's purchasing system should

be discontinued, and the purchasing area should be treated in a similar manner as estimating, i.e., review only.

(c) More stringent review of subcontracts by the SUPSHIPS and greater enforcement of Public Law 87-653. Although shipbuilders may claim disruption for failure to consent to subcontracts, appropriate language can be used by the SUPSHIPS in returning this document without consent, which will avoid this problem.

(d) Limit the use of firm fixed price prime contracts for major ship programs so that Government surveillance in the purchasing area may be continued.

(e) Upgrade the capabilities of the SUPSHIPS to review and consent to subcontracts.

(f) Reemphasize to the Commander, Naval Ship Systems Command the importance of the subcontract area in the review and approval process prior to contract.

(g) Consider applying pertinent provisions of the ASPR to the subcontract area in the same manner in which they are applicable to our procurement process in dealing with the prime.

5. Action has already been taken in a number of the above areas as follows:

(a) Consent clauses are being placed in all major ships procurements (other than firm fixed price).

(b) A contractor's purchasing system will not be approved at SYSCOM level. OPSR reports will be reviewed by a board under my Deputy Chief of Naval Material (Procurement and Production). The intent is not to grant blanket approval, but rather to indicate to the administrative contracting officer areas of concern over which he must exert firm control.

(c) An ASPR case has been submitted to delete the approval provisions for OPSR.

(d) Teams from my staff have been conducting courses at contractors' plants to provide understanding of the provisions of Public Law 87-653.

(e) Major ship programs are now being placed on a more flexible priced basis and, within resource limits, the capabilities of the SUPSHIPS will be upgraded.

(f) It is intended that a proposed ASPR case will be submitted to require inclusion in prime contracts pertinent provisions of the ASPR regarding purchasing policy, i.e., competition, pricing, and documentation. In the interim, authority will be requested to proceed with this procedure on a test basis.

6. An important part of the subcontract review problem is the monitoring of subcontracts below \$100,000. It is intended that specific procedures for this review on a spot check basis will be imposed on our SUPSHIPS and prime shipbuilding contractors.

7. I will keep you informed of the progress of the efforts to improve our subcontracting review and consent procedures.

I. J. GALANTIN.

Admiral, U.S. Navy, Chief of Naval Material.

ANNUAL REVIEW OF PRIME CONTRACTOR'S PROCUREMENT SYSTEMS

Admiral RICKOVER. As I pointed out in my letter to the Assistant Secretary, I believe that the Department of Defense must exercise closer surveillance of prime contractor procurement activities. For example, the Department of Defense does not always review large subcontracts. There is a procedure whereby the Department of Defense conducts a brief annual review of the contractor's procurement system and, based on the results of this review, gives the contractor blanket approval to place subcontracts, regardless of amount, without prior Government consent or review.

Mr. MAHON. How reliable are the annual reviews of prime contractor's procurement systems?

Admiral RICKOVER. I don't place much faith in those reviews, Mr. Chairman. Let me give you an example that explains my reasons. In November 1968, the Navy conducted a contractor procurement system

review at a major shipbuilding company, one that receives over 80 percent of its business from the Government. This review gave the shipbuilder a clean bill of health and stated that the Navy could rely on his procurement procedures to assure reasonable prices on subcontracts. I found this conclusion difficult to believe. My experience with this same shipbuilder had been that I could not depend on his procurement system; in fact, some of the examples I just cited took place at this company.

Because of this, and because of my concern over the lack of cost controls at this shipyard, I sent two members of my staff to the shipyard to look into the operations for themselves. They reported to me that, in spite of the Navy's blanket approval of the shipbuilder's procurement operations, he had never adequately implemented the requirements of the Truth-in-Negotiations Act in its subcontracting; that the company tends to rely on bid prices as if they were competitive, even in cases of little or no competition; that a considerable portion of the company's work is subcontracted, yet the management effort to insure reasonable prices on its subcontracts is disproportionately small; and that the company has no adequate safeguards to control access to supplier bids.

My people also found that the shipbuilder did not have effective control over costs. He had no effective budget controls for 70 percent of his direct labor cost; and what budget system there was, was structured in such a way that it did not provide adequate cost control. Under the shipbuilder's budget system, it was possible to meet every individual budget and still overrun the cost of the ship. The shipbuilder's own survey of his accounting system in 1966 had indicated there was widespread mischarging of costs. He had no program of internal audits of management operations.

I believe that poor subcontracting practices and inadequate cost controls are major reasons for the substantial rise in ship construction costs over the past few years, and that it is incumbent on the Department of Defense to take an active interest in seeing to it that its contractors operate more efficiently and economically. The hands-off attitude that presently pervades defense contracting philosophy is unrealistic in the context of noncompetitive procurement.

You might expect that the Department of Defense would be very much interested in seeing to it that the operations of its largest defense contractors—the multidivisional companies with billions of dollars of defense business—are carried out efficiently and economically. In fact, however, the Pentagon seems more deferential to its biggest suppliers than it is to smaller firms. The industrial giants, through lobbyists and special interest associations, and through the Industry Advisory Council, seem to be quite successful in limiting Government review and supervision of their activities. The Department of Defense is often persuaded to reduce or even eliminate Government surveillance in prime contractor operations at the very time more controls and greater surveillance are required.

The philosophy is: "trust the contractor." The Government is expected to trust the prime contractor, and the prime contractor implicitly trusts the subcontractor. It makes me feel like the man whose friend's dog was barking at him. "Don't worry" the friend said, "he

won't bite." "I know that, and you know that," the man answered, "but does the dog know it?"

My experience has been that you cannot expect a contractor to look out for anything but his own interests, and that, even though it might be troublesome to get into the details, this is necessary in order to protect the Government's interests. I found long ago that the devil is in the details. That is why I review subcontracts.

The basic problem comes back to a point I made earlier. True competition is the most effective method of cost control. But true competition rarely occurs in major defense procurements. Defense contractors often have little incentive to reduce costs because they get the business anyway. A high-cost operation is easier to manage than an efficient one and the high cost is of little concern to a contractor as long as there is reasonable assurance that the costs can be charged to the Government. Orders can be placed immediately upon receipt of bids, without time-consuming analysis of prices, and without difficult negotiations. There are no pricing disputes with suppliers; consequently, supplier relations are better. Almost no management effort is required. Workers and managers are not bothered by tight budgets and such. Unlimited money solves a myraid of day-to-day problems.

The Department of Defense system of determining profit as a percentage of cost also gives contractors a positive incentive to increase costs when they are not threatened by competition.

Mr. MAHON. It is really the question of incentives? I wonder if this is just the way industry has always done business, whether for the Government or not.

Admiral RICKOVER. Most large defense contractors could do a good job of procurement if they put their minds and hands to it. But there is little reason for them to do it on a defense contract. If you look at a defense contractor's procurement organization you will often find that multimillion-dollar procurements under defense contracts are reviewed and approved with entrenched apathy. On the other hand, if the defense contractors want to spend a few thousand dollars of corporate funds for items such as plant expansion or new machine tools, I find that the decision and the procurement are reviewed at high management levels, sometimes by the board of directors. They will send corporate auditors and special negotiating teams from headquarters to insure minimum prices when it is corporate funds that are at stake. If we could get that kind of contractor attention on procurements under defense contracts, you would see a marked improvement, sir.

Mr. MAHON. It appears clear from this testimony that there are serious problems in the area of subcontracting. What do you think should be done to improve the situation?

Admiral RICKOVER. I believe this committee should include in the fiscal year 1970 appropriation act a provision that would require the Department of Defense to review and approve all subcontracts in excess of \$100,000 under any defense contract in which the Government shares in cost overruns or underruns. The committee should also require the Department of Defense to maintain records and report to Congress regarding major subcontract procurements, say, those in excess of \$100,000. Such reports should reflect the extent of competition and the amount of subcontracted work that goes to contractors identified in the Defense Department's top 100 contractors list. In this way Congress

could see the total amount of defense business these large contractors actually receive each year. I also recommend that this committee require the General Accounting Office to conduct a detailed review of prime contractor procurement practices in contractor plants where the Department of Defense relies on an approved purchasing system. The purpose of such a review would be to determine the adequacy of the contractor's purchasing practices and the ability of the Department of Defense to assess the adequacy of such practices.

TRUTH-IN-NEGOTIATIONS ACT

Mr. MINSHALL. I would like to discuss further your statement that contractors are not complying with the Truth-in-Negotiations Act. We passed an amendment to the Truth-in-Negotiations Act. I am familiar with it because I was the author of it along with Senator Proxmire. We spoke of a postaudit for subcontracts. Rather than being optional we made it part of the law.

Admiral RICKOVER. I do not think the law is being carried out as you intended, sir.

Mr. MINSHALL. Whose fault is this?

Admiral RICKOVER. It is largely the Government's fault. The Government has failed to use its rights under the law.

Mr. ANDREWS. What part of the Government fails to do it?

Admiral RICKOVER. The Defense Department. Let me explain. Your amendment to the Truth-in-Negotiations Act gave the Department of Defense the right to audit a contractor's books and records after a contract is awarded to make certain that cost and pricing data submitted to the Government are current, complete, and accurate. Although I do not agree with the way the Department of Defense is implementing this amendment, I certainly think the change was appropriate.

Mr. MINSHALL. How did the Department of Defense implement it?

Admiral RICKOVER. The Assistant Secretary of Defense for Installations and Logistics wrote to the three service secretaries, cautioning them that the right to review contractor's books and records is for the sole purpose of verifying information submitted in accordance with the Truth-in-Negotiations Act, and that no attempt should be made to determine actual costs on profits realized on defense orders. The letter said, in part:

I wish to make it clear that the purpose of any post award cost performance audit, as provided herein, is limited to the single purpose of determining whether or not defective cost or pricing data were submitted. Access to a contractor's records shall not be for the purpose of evaluating profit-cost relationships, nor shall any repricing of such contracts be made because the realized profit was greater than was forecast, or because some contingency cited by the contractor in his submission failed to materialize—unless the audit reveals that the cost and pricing data certified by the contractor were, in fact, defective.

That is like telling a policeman to arrest traffic offenders only, regardless of what other infractions he may observe.

Mr. MINSHALL. But the amendment to the law was helpful?

Admiral RICKOVER. Yes, sir. It could be quite helpful if there were a real desire to carry it out. The Truth-in-Negotiations Act has not been implemented effectively; for this reason it still does not prevent overpricing. Neither the act nor your amendment will be implemented ef-

fectively as long as letters such as the one I just read are being promulgated.

I have found that contractors often do not obtain cost and pricing data as required by the Truth-in-Negotiations Act. For example, I have found subcontracts classed as "competitive"—so that the cost data are not obtained—even when only one supplier can physically perform the work. I have found that many subcontractors refuse to provide the cost and pricing data required by the Truth-in-Negotiations Act, and that prime contractors instead of requiring compliance with the law, have developed techniques to help subcontractors get around it. These techniques include such devices as determining that competition is adequate on a sole-source procurement simply because a number of suppliers have been asked to bid, or determining that the price is based on a standard catalog item even when the Government is the only buyer.

Mr. MAHON. Exactly what is the prime contractor's responsibility under the law?

Admiral RICKOVER. The prime contractor must require subcontractors to submit cost and pricing data on orders over \$100,000 unless competition is judged adequate, the price is a standard catalog price, or the requirements of the law are waived. In subcontracting this seems to be a requirement honored more in the breach than in the observance. Often when I insist on cost and pricing data I am told that the subcontractor's policy is not to reveal such information, or that all the other business he has had with the Department of Defense has been competitive. It appears to me that some of these firms have been permitted to supply equipment and materials to the Government under defense contracts without providing the cost and pricing data required by law.

Mr. MINSHALL. Over what time frame do you talk?

Admiral RICKOVER. Right now.

Mr. MINSHALL. The reason I brought up the question at this time is that this administration has hardly had time to get its feet wet.

Admiral RICKOVER. This problem did not start with this administration. The law was passed in 1962. The problem has existed for years. It went on last year, and the year before, and it is going on today. Within the last month alone three different contractors—three large companies, major suppliers—have refused to provide the cost and pricing data required by the law on contracts in my program. One case involved the Nation's second largest steel producer. The Navy wants to place an order with this firm for nuclear reactor pressure vessel forgings. Although it is the only supplier of these forgings, it has refused to provide the required cost and pricing data. Let me read from a letter we received from this firm:

Please be advised that Bethlehem Steel Corp. will not submit cost and pricing data on the inquiry referred to above. Further, in the event Bethlehem Steel Corp. is tendered a purchase order pursuant to the subject inquiry, we would not accept such a purchase order if such acceptance was conditioned on our submission of cost and pricing data.

Mr. Chairman, I wonder how far an individual would get if he took the same attitude toward the law as this industrial giant. Suppose a young man sent a letter to his draft board saying: "Please be advised that I will not report for induction. Further, in the event I am

tendered a draft notice, I would not accept it if such acceptance were conditioned on my reporting for active duty." I don't think he could get away with it. I don't think this huge steel company should get away with ignoring the law, either.

I have asked Department of Defense officials to assist in obtaining this company's compliance with the law. I sent them extensive documentation on the case and asked for their assistance, since they are in a position to use the leverage of the Pentagon's immense buying power to get the company to provide cost and pricing data. In the meantime, an important order for the nuclear Navy is being delayed.

If there is a true meaning to maintaining a military establishment, then it follows that those who are protected by it, as this company is, must not be permitted to weaken it by exacting excessive profits.

I cannot believe this is the first time this steel company has refused to comply with the law. I do not understand why I had to be the first one to raise this issue. However, now that I have informed my superiors, it will be interesting to see whether the Department of Defense will enforce compliance with the law in this case.

Let me give you another example of failure by the Department of Defense to get cost data where by law it should.

Nickel is one of the most widely used of all alloying agents, primarily for its corrosion resistance, strengthening ability when alloyed with steel, ability to withstand high temperatures, and ductility. The major user of nickel is the steel industry, which uses nickel in producing stainless steel. Nickel is also used extensively in armorplate. Its military importance is obvious, given the need for high strength and corrosion resistance in numerous items of military equipment, including missiles and supersonic aircraft. The Department of Commerce annually sets aside 25 percent of total U.S. consumption of nickel for government orders, mainly for the Department of Defense, NASA, and the Atomic Energy Commission. These "set-asides" total over 40,000 short tons of nickel each year.

The nickel industry is dominated by one foreign firm, the International Nickel Co. of Canada. It produces over 60 percent of world consumption of nickel each year. Forbes magazine of December 1, 1967, said of International Nickel:

Of all the industrial empires forged by J. P. Morgan at the turn of the century, there is only one that still remains the unchallenged master of an unregulated industry—the International Nickel Co. of Canada, Ltd.

Other onetime Morgan near monopolies—powerful firms like U.S. Steel, Montgomery Ward, and International Merchantile Marine—have come down mightily in the world; IMM exists today only as U.S. Lines; Montgomery Ward is a sick company; U.S. Steel, which controlled more than half of the American steel market in Morgan's day, now has scarcely 25 percent.

But Inco today, under Chairman Henry Wingate, occupies a position in the nickel market comparable to that of IBM computers; it has a 65-percent market share. After 60 years, it remains absolutely supreme in its industry. This is an almost unprecedented record of corporate vitality. And nickel is no slouch of a market; production has nearly tripled since 1950. Inco's operating profit margins reflect its market dominance; over the past 9 years, in good years and in bad, they have averaged 33.5 percent on the sales dollar (as compared with a median return of 13.8 percent for the metals industry as shown in Forbes 1967 Annual Report on American Industry).

Mr. Chairman, International Nickel has realized record profits for the past 5 years as world consumption of nickel has increased substantially. The price of nickel has also increased drastically, with

major increases in the past 2 years. In the 16 years from 1950 to 1966, the price of nickel increased 28 cents a pound—from 50 cents to 78 cents. In the next 2 years the price increased another 25 cents to \$1.03 per pound by 1968.

Here is another area where the Department of Defense does not know what profits are being made on defense procurements. Further, procurements of nickel and nickel alloys are in all probability exempt from renegotiation under the commercial sales exemption, even though the alloys are made to Government specifications. Cost and pricing data are not obtained because the International Nickel Co. has established catalog prices for these products. I believe that Public Law 87-653 should be revised to require contractors to furnish cost data in such situations. Further, I believe the Department of Justice should be asked to investigate this situation to determine whether the Government should take action to insure reasonable prices for defense materials in this monopoly situation.

Mr. MAHON. Admiral, when companies refuse to comply with certain phases of the law, is this usually the individual decision of a single company, or do you find a concerted stand by some industries?

Admiral RICKOVER. There does seem to be a concerted stand in some industries in refusing to provide cost and pricing data. For example, I understand that no firms in the computer industry provide cost and pricing data to the Government. I find that many steel mills, forging suppliers, and material suppliers do not provide cost and pricing data. Sometimes, however, the policy is not consistent among the various divisions of large corporations. For example, in the course of my work I have dealt with several divisions of one of the Nation's largest defense contractors. Some divisions provide cost and pricing data; others state they will not. One division provides cost and pricing data only in situations where its management, rather than the Government, determines that competition is not adequate. Several other firms have taken the position that their own determination that prices are competitive should satisfy the requirements of the law.

Since the products these firms supply are often essential to the defense effort, and since these companies wield considerable economic—and possibly political—power, contracting officers and prime contractors have managed to find ways to avoid the problem of a face-to-face confrontation with these industries over the Truth-in-Negotiations Act.

There is a question here that intrigues me, Mr. Chairman: Why are these defense contractors so anxious to hide their profit figures? They have been complaining for years that defense profits are woefully low. Chief executives of the largest defense suppliers are continually announcing that they will be forced to leave the military business if profits are not increased.

If this were true, it would seem reasonable to me that these firms would welcome the chance to report their actual costs and profits to the Department of Defense. In fact, defense contractors should consider the Truth-in-Negotiations Act a wonderful opportunity to prove their point. But this has not been the case; instead, contractors have gone out of their way to avoid providing the information required by the law. This may be a more revealing commentary on defense profits than

all the pious platitudes of the major contractors. As Shakespeare puts it in Hamlet, "The lady doth protest too much, methinks."

Mr. MAHON. What is the basic problem in obtaining cost and pricing data on defense contracts; is it that the law is deficient as it is written, or is the problem in the enforcement of the law?

Admiral RICKOVER. Enforcement is one problem, Mr. Chairman. The law as it now stands could be made much more effective if it were enforced by the Department of Defense and if the Department were willing to use the leverage of its purchasing power to obtain compliance. But there are more serious problems in obtaining accurate cost data. Without uniform standards of accounting, the law will never be fully effective. The law presumes that costs have a factual basis, and that by obtaining a supplier's cost estimate the Government has a sound basis for evaluating a price. But since there are no uniform cost accounting standards, this is not true. Contractors are able to hide profits in their costs, and so the Government can never determine what the actual costs are without months of reconstructing the supplier's books. In preparing the cost breakdowns they provide to the Government under the Truth-in-Negotiations Act, contractors exploit the lack of uniform accounting standards in order to overstate cost and understate profit. This is easy to do under so-called generally accepted accounting principles. Let me give you some examples of the accounting gimmickry we are up against:

One large defense contractor reported a lump sum figure as subcontracted costs. Actually, the work was subcontracted to another division of the same company, and a 25-percent profit was hidden in the cost of the subcontracted work.

Another contractor certified to a 20-percent general and administrative expense rate and a 3-percent profit rate in his cost breakdowns. The Government auditor determined that the true general and administrative expense rate was only 12 percent, so that the actual profit on the order was really 10 percent, instead of the 3 percent, the contractor certified.

Several contractors have accounting systems that do not reveal the cost of individual orders. They can certify to any cost figure and the Government can never prove whether or not the certified cost is—in the language of the Truth-in-Negotiations Act—"current, complete and accurate."

Contractors may account for costs one way on their books and then list them on a different basis in the cost breakdowns. One contractor was found to have included millions of dollars of special tooling as a direct cost in cost breakdowns submitted to the Government, although under his own accounting system such costs are normally spread over all contracts as an item of overhead expense. When confronted with the disparity, the contractor said that the way he priced contracts had nothing to do with the way he accounted for costs, and vice versa.

Another way a contractor can overstate costs and still get around the Truth-in-Negotiations Act, is to attribute large portions of the cost estimate to judgement. Under the Truth-in-Negotiations Act, a contractor is liable for failure to disclose accurate, complete, and current information. However, he may double a legitimate cost estimate without concern for the Truth-in-Negotiations Act if he attributes the doubling to "judgment."

As long as the practices I have enumerated are allowed to continue, the Truth-in-Negotiations Act cannot be effective; it remains largely fiction. While it could be very helpful in pricing defense contracts if it were administered properly, it does not at present protect the Government against overpricing.

To be really effective, the Truth-in-Negotiations Act itself needs to be strengthened. It should require contracting officers to obtain, and contractors to provide cost data on all contracts in excess of \$100,000 unless such contracts are awarded as formally advertised procurements. This would eliminate the loophole that allows the Department of Defense to declare that negotiated procurements are competitive, thereby avoiding the need to obtain and evaluate supplier cost and pricing data. Moreover, the Department of Defense should not be allowed to waive the Truth-in-Negotiations Act for contractors doing more than \$1 million of business with the Government annually.

Further, Congress should provide for the establishment of uniform cost accounting standards so that there would be a meaningful basis for implementing the Truth-in-Negotiations Act. I also recommend that you ask the Justice Department to investigate the antitrust implications when entire segments of industry, such as computer manufacturers, material suppliers, and others appear to take a united stand in refusing to provide cost and pricing data.

UNIFORM COST ACCOUNTING STANDARDS

Mr. MAHON. Admiral, I know you have recommended the establishment of uniform cost accounting standards for work on defense contracts. You have stated that the lack of uniform standards for work on defense contracts is the most serious problem in defense procurement. I would like you to explain to the members of this committee exactly why you feel uniform standards are important.

Admiral RICKOVER. Mr. Chairman, negotiations between the Government and industry are rarely an even match. As long as defense contractors may calculate and report costs and profits on defense work in any manner they choose, they will have a substantial advantage over the Government. Let me explain that. In the idealized free market mechanism, the pressure of competition is supposed to force a manufacturer to produce goods at the lowest possible cost in order to give him the most profit at the prevailing market price. If he prices his goods too high, either because he is an inefficient producer or because he includes too much profit in his price, buyers turn to other companies.

In the defense equipment market, however, there is rarely any true competitive pressure to keep costs down. With the possible exception of food and clothing, almost all defense procurement is, in effect, non-competitive. The Department of Defense is tied to a small number of contractors for the major portion of its equipment, regardless of their efficiency or their pricing policies. As I stated before, more than half the defense procurement budget—about \$25 billion a year—is spent in sole-source procurement. In its statistics, the Department classifies some of its negotiated procurements as competitive. However, by definition negotiated procurements are those where the work is such that competition is limited. Thus, depending on your point of view,

the Department of Defense spends at least \$25 billion in noncompetitive procurements each year if you count only sole-source procurement, and up to \$40 billion if you consider negotiated procurement to be noncompetitive—as I do.

In the absence of true competition, the Department of Defense must obtain and evaluate contractor cost estimates and cost records if it is to be able to determine the reasonableness of contract prices. Costs are the real basis for negotiating price. Unless there is some uniform standard for measuring and reporting costs, however, it is virtually impossible to discover what it actually costs a contractor to produce defense equipment and what profit he makes in producing it—without spending months reconstructing his books. Arguments between the Government and the contractor over what is or what is not “cost” may take additional months. Frequently the contracting officer is confronted with widely varying opinions and judgments by accounting experts as to what “costs” actually are. Because of the pressure to award contracts and begin production, it is rarely if ever possible to take the time to investigate these issues thoroughly and settle them on individual contracts. The result is usually a compromise—a compromise determined more by the bargaining strength of the parties than by the merits of their arguments. The Government, facing sole-source situations well over half the time, is often forced to concede important points of principle because of a weak bargaining position and the delay that would be incurred. Thus, without uniform accounting standards, there is no real basis to determine costs.

Mr. Chairman, this is the point: The Department of Defense spends somewhere between \$25 and \$40 billion a year in procurements on which there is no sound basis for determining costs.

Without uniform accounting standards you can spend years auditing a contractor's records and still not know his actual costs and profits. For example, in a 1963 Navy procurement a supplier provided cost and pricing data which he certified was “based upon or compiled from the books and records of this company and is accurate to the best of my knowledge and belief.” However, the supplier did not have an accounting system that showed the costs of performing individual orders, and the cost and pricing information to which the supplier certified was not based upon or compiled from his books or records. Government auditors spent over a year reviewing the suppliers' books to try to determine his actual costs. All in all there were seven reports containing 11 different estimates of the supplier's actual costs. These estimates differed by as much as 50 percent.

Because the contractor falsely certified to cost information in this case, the Government is suing him under the False Claims Act. Although the amount of money involved is relatively small—about \$300,000—it is a significant case in principle because it will serve notice on other contractors as to the consequences of providing false cost information to the Government.

Mr. MAHON. The Department of Defense has taken them to court?

Admiral RICKOVER. The Justice Department is handling this case for the Government, Mr. Chairman. Frankly, I think this is fortunate. If the Department of Defense were directing the litigation, it would probably arrange a compromise settlement with the contractor which would cloud the real issue which is whether or not a contractor

can get away with providing false information to the Government. I expect the Justice Department to take a strong stand. That is why I am happy that they are handling the case. The Justice Department is the Government's final resort in cases such as this. I am sure they recognize the broad implications of this case: Its outcome will set a standard for integrity in Government contracting matters.

If the Justice Department establishes through this case that contractors cannot get away with providing false data to the Government on defense contracts, that Department will provide a great service to the taxpayers. If it does not, if it compromises or bargains away the Government's position, then industry will know that hereafter they can mislead Government contracting officers without fear of the consequences. If they are caught, the small amount they are penalized may well be less than the overcharges the Government paid, and it is probably tax deductible anyway.

Mr. MAHON. I will be interested to hear how this case is decided. Go ahead, Admiral.

Admiral RICKOVER. Let me emphasize, Mr. Chairman, that when I speak of uniform accounting standards I am not talking about a rigid system that every contractor would be required to use. Opponents of uniform accounting standards claim the Government would dictate how each company's clerks and bookkeepers should do their jobs. I think the opponents know better than this; I think they are using this *reductio ad absurdum* for rhetorical effect and not as a means of reasoned argument. However, if there is concern that the Government is going to dictate bookkeeping practices, I want to set the record straight. I am not talking about regulations for bookkeeping or clerical matters. What I say is needed is a set of standard principles by which contractor costs can be evaluated and measured: standard principles for the way overhead is charged, the way component parts are priced, the way intercompany profits are handled. At present there are no standards for these things in the defense industry; one man's cost is another man's profit.

Here is an example that came up recently. The Navy was buying forgings at a price of \$175,000 from a large metal company—in fact, it was the International Nickel Co., which I discussed a few minutes ago. When the Defense Contract Audit Agency tried to review the company's accounting records, the auditor could not determine the profit on several manufacturing operations. Where he could calculate profits, he found they were three times as high as those shown by the company. Let me read from his report:

We are unable to calculate the rate of profit requested by the subcontractor on the base price of material plus extras, high tensile forging, fine grain processing, and tensile testing. We calculated requested profit ratios of 22.77 percent and 21.57 percent on proposed costs of machining and testing (exclusive of tensile testing) respectively.

The company's proposal to the Government shows a profit of 7.5 percent on this work.

USE OF "GENERALLY ACCEPTED ACCOUNTING PRINCIPLES"

Under current procurement regulations, the contractor is required to report cost and profit information in accordance with "generally accepted accounting principles." Perhaps those words look impressive

at the bottom of a financial statement or a stock prospectus. But I have found in practice it is a hollow phrase. "Generally accepted accounting principles" in relation to Defense contracting mean whatever accounting devices the contractor wishes to use to increase or decrease costs to his own advantage. These "generally accepted accounting principles" need have no correlation with the principles that other contractors use; they do not even have to be the "principles" the very same contractor employed on his last contract with the Government.

The Defense Contract Audit Agency recently performed a study—at the request of the General Accounting Office—into the meaning of the phrase "generally accepted accounting principles." The Deputy Director of the Defense Audit Agency discussed the results of the study last month:

"* * * I would like to summarize our findings as to the attitude of the Board and the Courts on generally accepted accounting principles. I feel that this point is both relevant and significant because many views have been expressed that these principles are appropriate and sufficient to ascertain contract costs and that no other techniques, such as uniform cost accounting standards, are either necessary or desirable. The matter of generally accepted accounting principles is also very important because of the frequent reference to this term in the current section XV of the Armed Services Procurement Regulation. And ASPR, XV, although it may not have been very popular in the past, has become an overnight favorite with many, coincident with the proposal for uniform cost accounting standards.

In terms of a significant and current expression of judicial attitude toward generally accepted accounting principles, I would invite your attention to *U.S. Steel Corp. v. U.S.* (court of claims) (367 F. 2d 399 (1966)), and quote the following from the court's decision:

We note that one must look with some care and caution to "generally accepted accounting principles" for aid in determining the allowability of costs to CPFF (cost-plus-fixed-fee) contracts. Such principles have evolved primarily out of the need for principles of asset valuation and periodic income measurement * * * and are not cost accounting principles, but cost accounting concepts * * * [may] evolve out of them. The standard should not be automatically accepted for use in the present context, come-what-may. Moreover, in many instances, there may be little professional agreement as to what alternatives are the most reliable or desirable.

In a similar vein, the following remarks on accounting principles were included in *Lockheed Aircraft Corp. v. U.S.* (court of claims) (375 F. 2d 780 (1967)):

This is an extremely difficult cost accounting problem, not because it involves a complicated fact situation, but because the standards [generally accepted accounting principles] are inconclusive * * *

"It [fixed-price incentive clause of the contract] suggests that the standard of allowability is 'generally accepted accounting principles and practices.'"

"This standard would be very helpful if it provided a simple answer. Regrettably its vagueness prevents that result. The plaintiff's expert witness * * * testified that [the] method was consistent with accepted accounting practice. Defendant's expert * * * testified that what might be a generally accepted accounting principle for product-pricing in a commercial business should not be carried over to contract-pricing in a mixed Government and commercial business. We have no doubt additional witnesses could be produced to offer cumulative testimony on each side, only to leave the issue in deadlock * * *

Our review suggested that the ASBCA (Armed Services Board of Contract Appeals) was not inattentive to the judicial views expressed from 1966 on. In that same year (ASBCA No. 10785) the Board stated: "Reference to 'generally accepted accounting principles' is of little assistance in choosing between two differing contentions. Neither theory appears to be beyond the pale of that broad statement of accounting acceptability; we have scarcely ever been cited to anything that is."

In a 1967 decision (ASBCA No. 12139) the Board observed that it regarded generally accepted accounting principles "with appropriate caution" and, in a 1968 decision (ASBCA No. 10913) it stated:

"Not only must one be cautious in applying generally accepted accounting principles, but one apparently must be diligent indeed even to find such principles." Time does not permit citation of the numerous other judicial and quasi-judicial decisions which make it abundantly clear that, whatever significance "generally accepted accounting principles" may hold for accountants, they are not considered very significant by courts and administrative boards for decisionmaking purposes.

Admiral RICKOVER. This report makes it clear that we cannot get a meaningful measure of contractor costs or profits as long as the only criterion for reporting costs and profits is "generally accepted accounting principles."

That is why uniform cost accounting standards are essential for use on all negotiated defense contracts. I estimate that uniform cost accounting principles would save the Government at least \$2 billion per year.

GAO STUDY OF UNIFORM COST ACCOUNTING STANDARDS

As is often the case, it was Congress, not the Department of Defense or the General Accounting Office, that recognized the significance of uniform standards. Last summer, Congress directed the General Accounting Office to study the feasibility of uniform cost accounting standards for defense contracts and to report its findings to Congress by the end of 1969.

Mr. MAHON. Let me ask you about that study, Admiral. I am sure you follow this project closely. What progress is the General Accounting Office making?

Admiral RICKOVER. Frankly, Mr. Chairman, I am disappointed at the way the General Accounting Office has gone about it. For one thing, they apparently did not consider this project very important. At the beginning, they only assigned one or two fulltime people to the study—until congressional pressure forced them to take the study more seriously. Moreover, they farmed out the study to industry, to accounting associations, and others so that the General Accounting Office may become a "coordinator" rather than a firm leader in developing and testing uniform cost accounting standards.

From the beginning, I have been concerned that the General Accounting Office was taking the wrong approach in this study; that they may be trying to determine what principles would be acceptable to the defense industry, rather than determining what standards are necessary to provide a sound basis for effective and minimum-cost contracting. They seem to be trying to determine what standards the defense industry and the professional accountants would like to see. They sent questionnaires to over 2,000 representatives of private industry asking for their opinions. Later they distributed some sample cost standards and wanted to know if the sample standards were "too flexible," "too restrictive" or "about right." It strikes me that this may become sort of a massive popularity poll—a poll, I am afraid, that may arrive at the lowest common denominator.

Industry and most professional accountants appear quite satisfied with their present phantasmagorical accounting practices. Accountants have had a committee on uniformity since the 1930's, but with no action. They have wasted much time in thoughtful immobility.

I imagine that some scholarly accounting "experts" will criticize me for having the audacity to enter their private preserve. They will say that laymen have no business becoming involved in this esoteric field—which only they are capable of understanding. But while they were ensconced in their ivory towers, high above reality—their heads in a fog—it was the laymen who had to raise the issue, and it will have to be the practical laymen in Congress who finally do something about it.

Mr. MAHON. Have you spoken to the General Accounting Office about this study?

CORRESPONDENCE WITH COMPTROLLER GENERAL

Admiral RICKOVER. Yes sir, I have met with the Comptroller General and his associates and I have written him twice during the course of the study telling him of my concern. I recommended that the General Accounting Office conduct its own investigation, and that it develop standards that would best serve the Government's purposes before they seek industry's comments.

Mr. MAHON. May we see those letters, Admiral? Could you give them to us for the record?

Admiral RICKOVER. Yes, sir, I will supply them.
(The information follows.)

11 Dec. 1968

HON. ELMER B. STAATS,
Comptroller General of the United States,
U. S. General Accounting Office,
Washington, D. C.

DEAR MR. STAATS: In a November 19, 1968 letter Mr. William Newman of your staff requested my comments on a questionnaire to be distributed to defense contractors in connection with the feasibility study of uniform cost accounting standards. This study was undertaken in compliance with the requirements of Public Law 90-370.

I can see that much effort has gone into preparation of this questionnaire. However, I am concerned with GAO's approach to the study. I am particularly concerned that the questionnaire may be used by contractors to "prove" that uniform cost accounting standards are infeasible.

Industry bias against such uniform standards is well known. With the single exception of Mr. J. S. Saidman, the accounting profession and defense contractors were unanimously opposed to uniform cost accounting standards during the Senate Banking and Currency Committee hearings last June, prior to passage of Public Law 90-370. Therefore, it is obvious that industry will not agree to establishing uniform standards of accounting—because industry thinks it is not in its interest to do so.

I question the usefulness of sending a questionnaire to contractors to obtain factual information on how costs are charged on Government contracts. I believe that GAO should obtain whatever factual information it needs from Department of Defense and GAO auditors in the field, rather than by relying on information volunteered by industry. The Logistics Management Institute profit study has been widely criticized, because it was based on unverified data volunteered by industry. The GAO should guard against similar shortcomings in its study.

It appears to me that GAO has chosen to first answer the question, "What kind of standards does industry consider feasible?" In my opinion, GAO should determine what the Government needs rather than what industry will offer.

I suggest that GAO, working with the Department of Defense and the Bureau of the Budget, first determine what standards would meet the Government's objectives of obtaining a meaningful basis for contract pricing. Once this has been established, industry comments on the feasibility of such standards can be obtained. In this regard, I believe the cognizant Government auditor should review and comment on each contractor's response, so that GAO can have adequate information to properly evaluate it. Had I set out to establish technical standards for Naval nuclear components by asking industry what standards they considered

feasible, we would not today have our present high standards for nuclear cores, nuclear valves, nuclear pressure vessels, nuclear welding, and many other standards for manufacturing nuclear components. Industry initially considered nearly all of these standards infeasible. However, I started by defining what the Government needed. Then, I asked industry why they could not meet the Government's standards. As it turned out, they could and did.

As one of many examples: one of the leading technical societies has, for many years, established its codes for the manufacture of equipment by obtaining a consensus of industry representatives. As a result, the standards adopted were influenced more by what industry was willing to do than by technical and safety requirements, although the latter were the basic reasons for developing the codified standards. As a result of incidents, there is now underway an effort to correct this situation.

I have testified that the lack of uniform standards of accounting is today the most serious deficiency in Government procurement and costs the Government many millions of dollars unnecessarily. Without uniform standards the Truth-in-Negotiations Act and the Renegotiation Act cannot be effective in protecting the taxpayer against overpriced defense contracts. I believe that this deficiency is deserving of your personal attention and that you would do your agency great credit by establishing such standards, I know of the opposition you will face, but I also know that you are resolute in action.

I appreciate the opportunity to review and comment on your study. If I can be of further assistance, please let me know.

Sincerely,

H. G. RICKOVER.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.O., March 26, 1969.

Hon. ELMER B. STAATS,
Comptroller General of the United States,
U.S. General Accounting Office, Washington, D.O.

DEAR MR. STAATS: During our meeting of January 2, 1969, you asked for a statement concerning areas of accounting that have been most troublesome to me in procuring components for nuclear-powered ships. Your letter of January 6, 1969, further requested my comments on several specific problem areas in accounting for costs on Government contracts. This letter responds to both requests.

The Department of Defense (DOD) spends about \$45 billion a year for military procurement. Of this amount, about \$5 billion is spent in formally advertised, competitive contracts. The remainder, \$40 billion, is spent in negotiated procurements. Negotiated procurements are not truly competitive—more than half of them are sole source. It is in this area of noncompetitive or negotiated procurement that the Government encounters great difficulty because there are no uniform standards for determining costs. No group in industry, the Government, or the accounting profession, all of whom have a vital interest in equitable contractor costing practices, have thus far seen fit to develop a set of specific standards to be followed which can be understood and be relied upon.

In the absence of true competition, the Government must rely on contractor cost estimates and cost records in pricing its contracts. However, under today's procurement rules, it is virtually impossible to discover what it costs to manufacture defense equipment and what profit industry makes in producing it—unless months are spent reconstructing suppliers' books. Government officials repeatedly face the Hobson's choice of delaying important work to analyze thoroughly and negotiate costs or placing the contract without understanding fully the basis for the price.

As you know, for the past several years in testimony before various Congressional committees, I have cited numerous examples of the difficulties I have encountered because there are no uniform standards of accounting for costs. As an engineer trying to manage an important Government program, it is important that I have reliable cost information available to assist me in making decisions—not only with respect to an individual contractor, but as a basis for comparing costs of contractors who are capable of performing the work desired. DOD procurement regulations state that indirect costs should be allocated "in accordance with generally accepted accounting principles which are applicable in the circumstances". Accountants themselves admit that "generally accepted accounting principles" provide no specific guidance for determining how costs are allocated to contracts. A contractor may vary his depreciation "costs" by as

much as 100 percent in 1 year depending on which of the approved methods of depreciation he chooses. He can hide additional profits in material costs or overcharge the Government by the way he allocates overhead costs. The principles are so general and have so many loopholes that contractors have almost unlimited flexibility in assigning costs to Government contracts. As a result, cost comparisons, even between firms in the same industry, are generally meaningless. Further, contractors can change their accounting systems so that reported costs for identical work by the same contractor on two different contracts are not directly comparable. In testimony before the Joint Economic Committee on November 14, 1968, I stated:

"Other General Accounting Office reports indicate some of the problems encountered under the Armed Services Procurement Regulation cost principles. In one case, the General Accounting Office reviewed the cost of bidding and related technical efforts charged to Department of Defense and National Aeronautics and Space Administration contracts. Let me read some excerpts from the General Accounting Office report:

"Paragraph 15-205.3 of Armed Services Procurement Regulation defines the bidding costs * * *. However, if the contractor's established practice is to treat bidding costs by some other method (than defined in ASPR 15-205.3), the results obtained may be accepted only if found to be reasonable and equitable.

"Although the cognizant (Government) auditor has questioned a significant portion of the bidding and related costs claimed * * * in recent years, the Government negotiator has allowed virtually all such costs.

"DOD has not provided auditing and contracting officials with specific guidelines for implementing the bidding cost provision, and these officials, as well as contractors, must interpret the "bidding cost" provision only by the general terms of the "reasonableness" provision (of ASPR).

"In another case, the General Accounting Office reviewed selected overhead costs charged to Government contracts. Let me read some statements from that report:

"The Armed Services Procurement Regulation generally requires that allowable indirect costs in cost-reimbursable-type contracts be reasonable * * *.

"The ASPR offers no specific guidelines covering the allocation of plant maintenance and occupancy costs."

"The allocation of building maintenance and occupancy costs on the one-roof basis is only one of several acceptable accounting practices. In our opinion, however, this method is not acceptable when it results in costs being assigned to operations to which they are not applicable and, particularly, where an alternative method would produce a more equitable cost distribution."

"In another case, the General Accounting Office also reviewed reimbursement of certain overhead costs under cost-type contracts. The following are excerpts from the reply to this report:

"The report states that (the contractor) was improperly reimbursed for certain overhead costs incurred during 1959 and 1960 in the amount of \$95,000. The report considers that these costs were not allowable under the applicable cost principles in the Armed Services Procurement Regulation. Specifically, the report held that the Air Force should not have approved the payment of \$30,000 of administrative costs related to the contractor's advertising department, \$48,000 of administrative costs associated with the contractor's participation in certain exhibitions, and \$11,000 of costs associated with the financing of the contractor's operations.

"We believe that your findings and conclusions as set forth above are not correct. You imply or state that the costs in question were unallowable under the applicable ASPR cost principles. The fact of the matter is that the applicable ASPR provisions were silent as to the specific allowability of these costs and hence were subject to consideration under the general ASPR principles of reasonableness and allocability. This being the case, the treatment of these costs were a matter of judgment for the duly authorized Government official; namely, the administrative contracting officer at the * * * plant * * *."

You know of my objections to the GAO's present approach to the study of the feasibility of uniform cost accounting standards. As I stated in my December 11, 1968, letter to you, and as I reiterated in our January 2, 1969, meeting, circulating a questionnaire to obtain industry comments and opinions as to the feasibility of developing uniform cost accounting standards can only confirm the already well-documented opposition by industry to such standards—especially since the proposed standards are still undefined. In my opinion, the Gen-

eral Accounting Office should first determine what the Government needs and then determine if any reason exists why industry cannot meet these needs.

In your January 6 letter you request my advice on six specific cost accounting areas. I understand these are difficult areas that have been debated by professional accountants for years without resolution. As an engineer, I am interested in such accounting matters only from the standpoint of their effect on the true cost of products or services I must buy for Government programs. Simply stated, I want to know what an article costs with some assurance that the costs have been determined according to uniform criteria that are consistently applied.

I will not profess that an engineer can resolve the difficult questions that have for years concerned the accounting profession both in industry and Government. However, in response to your request, I have set down in an enclosure to this letter some of my thoughts concerning the six specific cost accounting areas identified in your letter.

There are two other problems related to the question of uniform cost accounting standards which should be dealt with by the General Accounting Office. The first is that DOD procurement regulations do not require defense contractors to keep meaningful cost records for work under negotiated firm fixed-price contracts. More than half of all negotiated procurements are firm fixed-price contracts. Many of them are large contracts for complex military equipment for which there is little or no competition. Often they are repeat orders so the need to know actual costs incurred on prior orders for similar equipment is obvious. Yet under present regulations defense contractors are free to decide what records will be kept. The records he keeps may be incomplete, or he may keep no cost records at all. The following extract is also from my November 14, 1968, testimony before the Joint Economic Committee:

"I mentioned earlier that a contractor can change his accounting system at will. This is another major loophole in defense procurement regulations—the absence of definitive requirements that contractors maintain meaningful accounting records. Generally, contractors are only required to maintain an accounting system conforming to the vague standard of 'generally accepted accounting principles.'

"The General Accounting Office has the right to examine books and records pertaining directly to performance of any Government contract over \$2,500 for a period of 3 years after completion of work. However, there is no requirement that contractors' books and records show the cost of this work. This is tantamount to having a season ticket to a theater where the curtain never rises.

"The Department of Defense requires that contractors maintain books and records to show the cost of performing certain types of orders, but this requirement does not pertain to firm fixed-price contracts—55 percent of defense procurement.

"These loopholes confront the Government with an endless variety of accounting systems for allocating costs to Government work. The Government has neither the time nor the personnel for full investigation of costs."

To help remedy this problem, I recommend that DOD contractors be required to keep meaningful books and records of actual costs for any negotiated contract over \$100,000.

The second problem related to the question of uniform accounting standards is that there is no firm standard for determining which costs DOD allows under negotiated fixed-price-type contracts. There are rules pertaining to the allowability of specific costs under cost-type contracts in section XV of the Armed Services Procurement Regulation (ASPR). However, ASPR states that these rules are only a "guide" for determining costs under fixed-price-type contracts. DOD contracting officers try to apply the ASPR section XV rules; however, DOD contractors argue that, because ASPR section XV is only a "guide," no cost is unallowable under a fixed-price contract. As a result, each contracting officer sets his own standards. Which costs he allows depends on his personal opinion, his negotiating skill and the strength of his bargaining position. Costs disallowed by one contracting officer may be allowed by another. Costs such as bad debt expense or interest expense which are not allowed under cost-type contracts are often accepted under fixed-price contracts. The following is another excerpt from the Joint Economic Committee hearings on November 14, 1968:

Chairman PROXMIRE. Admiral, I thought the Armed Services Procurement Regulation specifies cost principles for Government contracts. Would you please explain this?

"Admiral RICKOVER. The Armed Services Procurement Regulation cost principles apply only to cost-reimbursement-type contracts. These cost principles deny certain costs, such as advertising expenses and bad debt expenses that have been determined as a matter of Government policy to be inappropriate for Government contracts. However, these principles do not apply to firm-fixed-price and fixed-price-incentive-type contracts, which together constitute more than 75 percent of defense procurement. The Armed Services Procurement Regulation states that its cost standards are only "guides" in fixed-price contracting. Contractors interpret this to mean that all costs are allowable under fixed-price contracts. Dr. Howard Wright, in 'Accounting for Defense Contracts,' states specifically 'No cost is unallowable under fixed-price contracts.'"

"Let me read some of his suggestions from a section entitled, 'Ten Ways to Maximize Profits.' * * *

"For cost-type contracts determine if alternate treatment of an item may permit it to be allowable. For example, some entertainment costs might more accurately be classified as travel or employee moral expense * * *."

"Contributions to educational institutions are unallowable. However, if the purpose of the contribution is to underwrite losses incurred by the institution in offering courses to the contractor's employees, a lump-sum contract with the institution will accomplish the same objective and will be allowable."

"Avoid stock options and deferred compensation devices. Substitute higher salaries and fringe benefits that are allowable."

In my opinion, cost allowances should not depend on whether a fixed-price or a cost-type contract is involved. DOD procurement practices could be improved substantially if the cost principles of ASPR, section XV were made mandatory for all defense contracts.

The General Accounting Office could take immediate action with the DOD to require that meaningful accounting records be maintained on all negotiated contracts over \$100,000 and that ASPR, section XV be made mandatory for all negotiated defense contracts. I urge that this be done promptly.

I appreciate the opportunity to comment on your study of uniform cost accounting standards. The study involves complex issues. However, in my opinion, the General Accounting Office, as the Government's accounting expert, should begin by establishing such standards now. If it does not, Government personnel will be forced to continue devising their own standards on a case-by-case basis as best they can in the face of intensive pressure from contractors. This, in my opinion, is not in the public interest.

If I can be of further assistance, please let me know.

With continued assurance of my high regard,

Sincerely,

H. G. RICKOVER.

Enclosure: As stated above.

GAO question: ASPR section XV, in effect, allows as a charge to Defense contracts any amounts based on property costs and useful lives permitted by the Internal Revenue Service as long as the depreciation method and resulting rates are consistently applied. Do you feel that depreciation allowances should reflect the use of the services of the asset and not be influenced by tax benefits available under Internal Revenue Service regulations or other considerations? What guidelines would you suggest for Government contract purposes?

Comments: Present DOD and Internal Revenue Service rules permit widely varying depreciation charges for the same item. The contractor has complete license in deciding which method to use. He may use one method for tax purposes, another method for reporting to stockholders, and still another method for charging costs on Government contracts.

The method of depreciation used can have a significant effect on a company's cost and profit reports. The Wall Street Journal recently ran a story about the 9-month earnings report of a large defense contractor, which had changed its depreciation accounting method. The story said:

"The Federal income tax surcharge reduced 9-month earnings by 15 cents a share. But this was more than offset by a change in depreciation accounting which added about 22 cents a share to earnings."

Depreciation charges can be used just as effectively to reduce reported profits. This is shown by a simplified depreciation schedule for \$8 million in equipment on an assumed 8-year depreciable life, using three depreciation methods permitted under DOD and Internal Revenue Service rules:

CHARGES FOR DEPRECIATION OF \$8,000,000 IN 8 YEARS

Year	Double declining balance method (25 percent)	Sum of the years-digits method	Straight-line method
1st.....	\$2,000,000	\$1,780,000	\$1,000,000
2d.....	1,500,000	1,555,000	1,000,000
3d.....	1,125,000	1,333,000	1,000,000
4th.....	843,000	1,110,000	1,000,000
5th.....	633,000	890,000	1,000,000
6th.....	633,000	666,000	1,000,000
7th.....	633,000	444,000	1,000,000
8th.....	633,000	222,000	1,000,000
Total.....	8,000,000	8,000,000	8,000,000

† Assume switching to straight-line method at 5th year.

This schedule shows how a contractor can claim depreciation costs of either \$1 million or \$2 million in the first year—a difference of 100 percent—depending on whether he chooses to use straight-line depreciation or double-declining balance. In the second year the difference between the methods would be \$500,000, and so on.

The large initial differences in depreciation charged between the methods shown above may be acceptable for income tax purposes as an investment incentive. Also, the total taxes paid may equalize in the long run. These long-term considerations cannot be applied to contract pricing, however. Contract pricing requires an accurate determination of costs in the short term—over the life of the contract. It has been a long-established position of the General Accounting Office that each contract should be separately priced without regard to profits or losses of other contracts. Contractors may profit to the extent that depreciation charged to a particular Government contract exceeds the actual depreciation of the asset on that contract. In the case of depreciation, as with many other costs, the rules adopted for contract pricing are rules designed for other purposes. Income tax rules may not be acceptable for contract pricing.

It seems to me that, from a cost standpoint, the most simple and equitable depreciation method for both industry and Government is the straight line method. Under this method, assuming accurate estimates of the useful economic life of an asset, the asset cost is amortized over that life without the distortion that results through use of accelerated methods which have come into practice for other purposes. The situation could be improved considerably if contractors were required to use—in words from your questionnaire—that method of depreciation “which most closely approximates the actual consumption of the asset rather than one preferred for its tax benefits or for financial reporting considerations.”

2. COSTING OF MATERIALS ISSUED FROM INVENTORIES

GAO question: There are varying methods used by contractors of pricing materials issued from stock to be used on Government contracts; that is, last in, first out (LIFO) method, first in, first out (FIFO) method, and the average cost method, to name a few. Do you find nonconformity in the pricing of materials issued from stock to be a significant problem in negotiating and administering contracts and, if so, what suggestions do you have as to the way to arrive at a realistic solution?

Comments: Under today's rules, contractors have great flexibility in deciding how materials should be charged to Government contracts. They may purchase materials directly for the contract or they may use materials issued through inventory accounts. I find that the method of pricing materials issued through inventory accounts can result in widely varying charges for the same item. The following is a simplified illustration:

Contractor A acquires five items from inventory during a period of rising prices:

First unit.....	\$100
Second unit.....	110
Third unit.....	120
Fourth unit.....	130
Fifth unit.....	140

The contractor uses some of these items in the performance of a Government contract. The cost to the Government under three generally accepted methods of pricing materials would be as follows:

	Cost to the Government	
	If 1 Item is used	If 4 Items are used
1st in, 1st out method.....	\$100	\$460
Average cost method.....	120	480
Last in, 1st out method.....	140	500

To determine the extent to which the Government may be overcharged through such accounting practices would require a detailed study by the Department of Defense or the General Accounting Office. However, the following is quoted from a memorandum prepared by the Chief Accountant of the Securities and Exchange Commission in response to a request of the House Interstate and Foreign Commerce Committee, in February 1964:

"Some areas of accounting where alternative practices could produce materially different results under generally accepted accounting principles are discussed in the following paragraphs:

"1. VALUATION OF INVENTORIES

"It is readily recognized that a single method of valuation is not suitable for all industries or for all companies within the same industry. The best known alternatives perhaps are 'first in, first out' (FIFO) and 'last in, first out' (LIFO). It took some time and litigation for the latter to be widely accepted for income tax purposes. This method affords a tax benefit but one of the conditions of its use is that the LIFO inventory be reflected in the books. As the use of LIFO was extended it attained the status of general acceptance while FIFO retained that status.

"Consistent application of either method is considered appropriate in reporting the results of operations. Failure to disclose the method used deprives the investor of significant information; hence, rule 5-02-6(b) of regulation S-X requires the disclosure. Continued use of LIFO in periods of rising price levels results in an increasingly conservative valuation of the inventory in the balance sheet which analysts should recognize when making comparisons between companies which have adopted LIFO at widely different times or between LIFO and FIFO companies. The accounting staff of the Commission and some public accountants encourage companies using LIFO to disclose in footnotes the inventory values on a current basis."

The principle enunciated in the above memorandum is disclosure. The Securities and Exchange Commission considers that contractors should identify the method used and, if the "last in, first out" method is being followed, that the results using values on a current basis should also be shown. For contract pricing purposes, the Government should adopt as its standard, the method or methods which most closely approximate actual cost. Contractors should be required to disclose and justify any other method of charging materials, such as "last in, first out," and to identify any difference between the cost to the Government under such method and the actual cost to the contractor.

3. RESEARCH AND DEVELOPMENT COSTS

GAO question: From an engineering and scientific standpoint, is it possible to distinguish among basic research, applied research, bid and proposal expenses, and product development to a sufficient degree to permit development and application of uniform cost accounting standards in these areas? To what extent, in your

opinion, should the Government support a contractor's independent research and development costs? What are your views on the Department of Defense's current efforts to adopt the standard of supporting independent research and development costs based on the levels of such efforts maintained in prior years with allowance for some growth or expansion of effort? Should all research and development costs be expenses as incurred or should certain types, for example, product development, be capitalized and written off against potential future products? Should the costs of a particular contract bear any portion of bid and proposal expense for (a) successful bids, and (b) unsuccessful bids?

Comments: The GAO question mixes the problem of allowability of certain costs with the problem of developing standards of accounting. My understanding is that your present study is directed to the feasibility of establishing uniform standards of accounting for these costs. The GAO recently issued a report on the allowability of contractor bid and proposal expenses and is presently engaged in reviewing the question of allowability of contractor independent research and development.

With respect to the feasibility of developing a uniform standard of accounting for contractor independent research and development work, I understand the Federal Power Commission recently ruled that certain of these costs in the electric and gas utility industry should be capitalized and amortized over a 10-year period. The Federal Power Commission is thus moving in the direction of establishing a standard for such costs.

My own views are as follows. Each year the DOD spends directly about \$8 billion for its own research and development programs. In addition, the Department of Defense pays in overhead charges on defense contracts about \$800 million a year for independent research and development work by defense contractors. This independent research and development work is performed without any Government direction or control. Under current procedures, the Department of Defense does not get any rights to technical data and inventions resulting from the independent research and development work of its contractors even though in some cases the Department of Defense may be paying the major portion of the cost of such work.

Contractors, under their independent research and development programs, can undertake whatever research or engineering development work they choose. Such work may be directed toward a specific objective such as development of a new product or solution of a particular problem, or it may be general research. The Department of Defense accepts the cost of such work in overhead on the theory that defense work benefits from new ideas developed by contractors under independent research and development programs. Of course, contractors for years have benefited from Government-financed research and development contracts without participating in the cost of such work. In fact they have been paid a profit to perform such work for the Government.

Under present practices, the Department of Defense has no way of knowing whether the benefits it receives from contractor independent research and development are worth the cost paid in overhead on defense contracts. In my opinion, a far better practice would be for the Department of Defense to contract directly for that portion of a company's independent research and development program which it chooses to support.

The Government pays directly for its own research and development programs. Contractor independent research and development programs may or may not be of sufficient value to warrant Government support. I consider that the Government should be able to decide whether or not it will participate in a contractor's independent research and development and the extent of such participation. If the Government desires to participate in a particular contractor-sponsored independent research and development program, it should arrange for such participation by means of a direct contract with the company involved, not through overhead charges on defense contracts. All other contractor research and development work should not be allowed as cost on Government contracts. Such work should be paid from profits.

4. INTRACOMPANY TRANSFERS

GAO question: Companies differ in their pricing of materials, products, and services transferred between divisions, and affiliates of the company performing a Government contract. Among the methods of pricing such transfers are cost, cost plus a markup, catalog prices, and prices said to be competitive without disclosure as to cost and markup. What suggestions do you have as to the appro-

private method of pricing intracompany transfers? What suggestions do you have for developing standards to apply in different situations?

Comments: ASPR, section 15-205.22(e) provides that allowance for all materials, supplies, and services which are sold or transferred between any division, subsidiary, or affiliate of the contractor under a common control shall be on the basis of cost except when the transfer is based on an "established catalog or market price of commercial items sold in substantial quantities to the general public," or it is the result of "adequate price competition." However, this section is only a "guide" on fixed-price contractors. It has been my experience that this "guide" is honored more in the breach than in the observance.

For example, the Naval Ship Systems Command is presently negotiating a multimillion-dollar, fixed-price contract with one division—call it division A—of a large defense contractor. This division requested a 20-percent profit on its estimated costs. But the contractor's price actually includes more than a 20-percent profit—because he has additional profits hidden in his "costs" for sub-contracted work. In this case, a significant portion of the work will be performed by another division of the same company, division B, which is charging 33-percent profit on its work. Since division A adds its 20-percent profit to division B's price, the Government ends up paying profit on the contractor's own profit. This means an increased price to the Government, and a profit to the company that is much higher than the 20 percent identified in its proposal.

The Government may be forced to accept the contractor's pyramid of profits because there is no real competition for this work. The Navy may have no remedy in the defense procurement regulations, because the contractor argues that the cost principles in ASPR section 15-205.22(e) do not apply to fixed-price contracts.

I consider that ASPR section 15-205.22(e), as well as the other cost principles in ASPR, should be mandatory for all negotiated fixed-price defense contracts. In addition, accounting standards should require that profits on intracompany transfers be identified in contractors' books and proposals as profit rather than as costs.

5. ALLOCATION OF OVERHEAD

GAO Question: This is, perhaps, the most difficult cost accounting area the Government will encounter in developing "uniform cost accounting standards." Our present thinking is that any standards adopted should embrace the concept of allocating indirect costs on a basis which shows a high correlation with their contribution to the contract, product, or activity. There should be homogeneity in the content of overhead pools. Thus, significant freight and material handling costs could not logically be included in an overhead pool having a significant content of personnel-related expenses such as overtime shift premiums, personnel management expenses, and like, which in turn is to be allocated on a direct labor hours or direct labor dollars basis. In your testimony before the House Banking and Currency Committee, you stated: "Large additional profits can easily be hidden just by the way overhead is charged, how component parts are priced, or how intracompany profits are handled." It would help us in our study, if you were to furnish us with the details of some of your experiences which prompted you to make the above statement. We would appreciate any suggestions which you may have as to the pitfalls to be avoided in the accumulation and allocation of indirect expenses.

Comments: The abuse in allocation of overhead costs is twofold. First is the problem of how costs should be divided between overhead and direct charges. Second is the problem of how overhead costs are distributed to contracts.

To illustrate the first problem, the following is quoted from a Government audit report on a multimillion-dollar negotiated fixed-price contract currently being negotiated with a large defense contractor:

"It is to be noted that (contractor) has proposed deviations from its normal accounting procedures. (Contractor) has proposed costs normally considered to be of an indirect nature as direct charges; however, no adjustments have been made by (contractor) to eliminate similar charges in the overhead rates proposed. This office is of the opinion that this deviation would result in the inequitable allocation of costs to the (proposed contract), and we have questioned costs accordingly."

In this case, the contractor intends to charge, as direct costs, work that he normally charges to overhead. By manipulating costs in this manner, the contractor can show higher costs, obtain a higher price, and thereby realize greater

profits. When it is to the contractor's advantage, he charges these costs to overhead; when it is not, they become direct costs.

In this case, there is no real competition so the Government will have to negotiate the best price it can under the circumstances. I expect the Government will have to accept the contractor's new method of charging and accounting for costs on this order. If so, cost information on this order will not be comparable to cost information on other Government orders, past or future. The Government may never know the true costs and profits.

The second problem is distribution of overhead costs. Contractors have considerable license in this area. For example, if a contractor finds he can allocate a larger portion of his indirect costs to Government contracts by changing the bases used in allocating these costs or by grouping his indirect costs to make new overhead cost pools, he has considerable latitude to do so. As the work at a given plant or a particular department changes, contractors can again change their method of allocating indirect costs and thereby alter the cost of work on Government contracts. Under these circumstances, it becomes difficult, if not impossible, to determine whether Government contracts are being overcharged. In the absence of any definitive standards, the Government is placed in the position of having to rely on its auditors to find and disclose these situations.

The GAO questions suggests two concepts which would be helpful in dealing with this problem. The first is the concept that overhead costs must be allocated on a basis which shows a high correlation with the contract, product, or activity. The second concept is that there should be homogeneity in the content of overhead pools.

6. MAINTENANCE EXPENSE

GAO Question: Maintenance expense is another area where it may be difficult to prescribe standards that will be uniformly applied. In your testimony you stated: "It is here (overhead) that companies use much ingenuity in making expenditures for plant repairs and rearrangements, tools, and manufacturing control techniques, computer programs, and other items—items which can be charged to overhead but which actually serve to improve a company's commercial capability." What suggestions do you have for writing a standard that will provide effective guidelines for distinguishing between normal maintenance capitalized as additions or betterments and depreciated or amortized over future periods? Can such guidelines be specific, or must they necessarily be general in nature?

Comments: In the absence of specific accounting standards, contractors have great flexibility in deciding what they charge as maintenance expense. In some cases, contractors have classified as "maintenance expense," long-term improvements such as new equipment, plant rearrangements, plant modernization, etc. Further, contractors may time such work so that as much as possible of the costs can be charged to Government contracts. In this manner, Government contracts pay the cost of work which will benefit the contractor in future years.

I suggest that these two concepts be the basis for an accounting standard which also requires consistent classification and consistent methods of allocating such costs throughout a particular company.

Because the Department of Defense has no firm guidelines for maintenance expenses, accounting practices vary from contractor to contractor. For example, I found that, under one large defense contractor's accounting practices, building maintenance work under \$50,000 which does not involve replacing a "complete system" was charged as an expense to current contracts. Another large defense contractor charged only maintenance work under \$100 to current expense. A third company charged to current expense anything which did not result in "a betterment to the property or a substantial extension of the life of the property."

The following example shows how the replacement of a \$5,000 electrical transformer in a contractor's plant might be charged under the accounting practices of each of these three firms:

(a) Company A would charge the \$5,000 as expense against current contracts because the transformer cost less than \$50,000 and did not constitute a complete system.

(b) Company B would charge the \$5,000 to contracts over a period of years because the transformer cost more than \$100.

(c) Company C might charge this cost either way depending on whether or not company C considered that replacement of the transformer resulted in a "substantial betterment of the building or a substantial extension of the life of the property."

Without a uniform standard, it is almost impossible for Government personnel to determine what is an acceptable charge to a Government contract. In one case, a contractor for several years charged items such as large machine tools, trucks, and parking lots as a current expense to Government contracts, although Government officials had determined his accounting system to be "in accordance with generally accepted accounting principles."

There are various categories of maintenance expense, such as housekeeping, repairs to plant and equipment, rearrangements, etc. I believe the Government could establish definitive rules for each of these categories.

RECOMMENDATIONS TO GENERAL ACCOUNTING OFFICE

Mr. MAHON. What happened in your meetings with the General Accounting Office Study Group?

Admiral RICKOVER. My staff and I showed the General Accounting Office numerous papers and records from our files to illustrate the problems we encounter on a daily basis. We told them about specific cases, one after another, showing what happens when there are no uniform standards for costs and profits.

Mr. MAHON. You gave them specific examples?

Admiral RICKOVER. Yes, sir. I told them about one case involving a large subcontract with a sole source supplier for submarine filters. The supplier refused to keep accounting records that would show the cost of manufacturing the filters so there was no way to determine whether his quoted prices were reasonable. The Navy contracting officer responsible for the equipment wrote: "With (the supplier's) present accounting system there is no way to tell what costs or profits are realized on a particular order."

Nonetheless, the Navy had no choice but to continue buying filters from this contractor in order to meet urgent requirements. The Navy even offered to pay all the cost required to set up an appropriate accounting system just to find out what these filters cost to manufacture. But the contractor, who preferred his own nonaccounting system, did not accept the Navy's offer until after some \$750,000 worth of filters had been ordered and were too far along in production to allow adequate tracing of costs.

I also showed the General Accounting Office my files on a \$6.5 million procurement with one of the five largest defense contractors. The Defense Contract Audit Agency noted that the firm was changing its accounting system and would not use the same accounting methods employed on previous Navy contracts. The auditor said, "* * * the subcontractor has proposed deviations from its normal accounting procedures. * * * This office is of the opinion that this deviation would result in the inequitable allocation of costs. * * *" Since there are no uniform standards for cost accounting, the company can make these deviations, in spite of the inequities that may result.

If we had all day for this, Mr. Chairman, I could go on and on reciting cases where the lack of uniform accounting standards impaired economical procurement. I gave the General Accounting Office many more examples, involving different companies in many different segments of industry.

And let me emphasize that I only provided examples from my own experience. There are thousands and thousands of similar cases; they pervade defense procurement. If the figures I have mentioned appear

small in relation to the whole of defense procurement, you should remember that the costs of the examples I cited, multiplied many thousandfold, make up a significant part of the defense budget.

Mr. MINSHALL. Will you provide the names of some of these companies?

Admiral RICKOVER. I would prefer not to identify particular firms or individuals. I have used examples to illustrate fundamental deficiencies in defense procurement. I only use examples from my own experience. It would be unfair to the firms I deal with to single them out when many other companies are undoubtedly doing the same and no one is interested in questioning these practices.

Mr. MAHON. You say these types of problems are typical of defense procurement?

Admiral RICKOVER. I can't speak for defense procurement in general. However, these are typical of the problems I encounter. And, I might add, with few exceptions the examples I have used involve many of the largest defense contractors. I can't believe that these problems arise on my contracts alone.

RECOMMENDATIONS TO CONGRESS

Mr. MAHON. What do you feel the Congress should do?

Admiral RICKOVER. Mr. Chairman, the General Accounting Office works for Congress. You set them up. You are their boss. Congress has the responsibility to see to it that the General Accounting Office does a good job on this study. I think the General Accounting Office needs a nudge from Congress occasionally—as do other Government agencies—to make sure it does its job.

For example, last November the Joint Economic Committee asked the General Accounting Office to make a comprehensive study of defense profits. They answered that such a study wasn't their job—somebody else should do it, somebody outside the Government. They argued that industry might be reluctant to cooperate. The Comptroller General said he didn't have enough legislative authority to study defense contractors' profits. He used this same line of reasoning in trying to dissuade Congress from requiring the General Accounting Office to conduct the study of uniform accounting standards. I do not agree that they need more legislative authority to look into certain aspects of government operations. The General Accounting Office has a broad charter. I have an extract from it here:

The Comptroller General shall investigate, at the seat of Government or elsewhere, all matters relating to the receipt, disbursement, and application of public funds, and shall make to the President when requested by him and to Congress at the beginning of each regular session, a report in writing of the work of the General Accounting Office, containing recommendations concerning the legislation he may deem necessary to facilitate the prompt and accurate rendition and settlement of accounts and concerning such other matters relating to the receipt, disbursement, and application of public funds as he may think advisable. In such regular report, or in a special report at any time when Congress is in session, he shall make recommendations looking to greater economy or efficiency in public expenditures.

The General Accounting Office has all the legislative authority it needs. This would be a static world if everyone constantly studies his charter—like Buddha contemplating his navel—to find reasons why he should not do his job. The Supreme Court has certainly not done so

for the past 90 years. They have assumed many powers not clearly assigned to them in their constitutional "job description."

The General Accounting Office could be, in a sense, the conscience of our Government. It should study the entire subject of defense procurement in depth, not because every problem is in the Defense Department, but because so large part of the Federal budget is being spent in procurement by this one department. In fact, defense procurement accounts for 25 percent of the entire Federal budget. Whatever principles and rules evolve from the Defense Department will be applicable to all other Government agencies. The General Accounting Office has been reluctant to take the initiative on these broad basic issues. I have told the Comptroller General and this officials that they are missing a great opportunity to save the Government large sums. They should be taking on the major issues, issues where important principles are involved and then formulate Government-wide procurement rules based on their findings. The General Accounting Office should be conducting broad investigations into fundamental aspects of Government contracting operations.

It is simply not enough to have a charter of responsibility for a job; the job must be kept meaningful for the existing situation. As Lord Acton said: "There is no worse heresy than that the office sanctifies the man."

The point I am making is that the General Accounting Office, like any other organization, should constantly examine its operations to insure that it is in fact carrying out its charter. It ought not mindlessly to be doing the same things long after the situation has changed. I do not believe Congress wants the General Accounting Office to preoccupy itself with investigating minutiae when there is an overriding need to look into the fundamentals of how the Government does its business. But the General Accounting Office appears to spend much effort on minor matters. Let me give you examples of some Government Accounting Office audit announcements that have come across my desk in the past few months:

- Administration in the Navy Calibration Service.
- Requirements and Common Use of Particle Accelerator Devices in the Boston Area.
- Utilization of Enlisted Personnel at Fort Belvoir, Va.
- Installation Procedures and Controls Relating to Household Furnishings at Biltburg Airbase, Germany.
- Survey of Employee Motivation of the Naval Shipyard, Charleston, S.C.
- Review of Manpower in the Navy Applied Biology Program.
- Department of Defense Commercial-Type Food Activities in CONUS.
- Effects of Recent Economy Moves at U.S. Army Finance Center, Indianapolis.
- Weather Prediction, Observation, and Modification Activities.
- Student Space Criteria Used by the Military Services in Establishing Requirements for Academic Classrooms and Training Facilities.

To be sure, much of the General Accounting Office's work is directed by Congress, and most of the reports in this list probably stem from congressional requests. But the General Accounting Office should take the initiative itself in major areas. The law places a mandate on the General Accounting Office to "investigate . . . all matters relating to the receipt, disbursement, and application of public funds." Congress should be able to depend on them to take the lead. By failing to take the initiative and to carry out their mandate they are, in my opinion, not carrying out one of their primary functions. If they attempt to live

with the certainty of routine, yet without being paralyzed by inaction, they aspire to the unattainable.

I have urged the Comptroller General to look at broad policy issues having Government-wide application. With our large and growing population, with the huge sums of money we are spending, with our vast bureaucracy—which essentially has gotten out of control of Congress and, therefore, of the people—the General Accounting Office can perform one of the most important functions in government. It is the only office in government both authorized and staffed to perform this function objectively. The Comptroller General is given a 15-year tenure for the specific purpose of freeing him from outside influences. I do not believe the General Accounting Office should look upon itself as the Audubon Society looks upon a bird sanctuary—as a secure, inviolate enclave.

I have observed that Government people such as auditors, inspectors or plant representatives, who are in positions where they are supposed to act as an independent check on contractor operations, often lose their effectiveness after a period of time. They become so sympathetic with the contractor's difficulties in his day-to-day operation that they lose sight of their own fundamental responsibility—to protect the Government. Sometimes they become reluctant to report new problems in the belief that the mere disclosure of the problem after years of surveillance would reflect adversely on their past performance. In effect, they then no longer represent the Government to the contractor; rather, they have come to represent the contractor to the Government.

I see evidence that this may be happening to the General Accounting Office. Congress, not the General Accounting Office, recognized the need for uniform cost accounting standards. Congress, not the General Accounting Office, pointed out the need for a comprehensive review of Defense profits. Congress, not the General Accounting Office, has taken the initiative in investigating the reasons for cost overruns in major Defense programs. The General Accounting Office's reaction to these efforts was largely negative.

If a negative attitude becomes pervasive in the General Accounting Office, it may be necessary to establish a new organization which will assume the work that is not now being done. Part of the genius of President Franklin Roosevelt was his recognition that you cannot overhaul an entrenched bureaucracy. When there was a job to be done and the existing bureaucracy was not up to the job, he would establish a new organization rather than waste time in a fruitless attempt to remake the existing one. Congress may have to consider establishing a new organization to undertake independent and comprehensive reviews of Government contracting.

DEFENSE PROFITS

Mr. MAHON. Admiral, you've been engaged in a controversy with the Department of Defense for some time now over defense profits.

Admiral RICKOVER. Yes, sir. Our disagreement stems from my concern that defense profits may be too high.

Mr. MAHON. Are they?

Admiral RICKOVER. Nobody in the Department of Defense can tell, Mr. Chairman; they do not know how much profit contractors are actually making. However, there is enough evidence of high profits to cause serious concern, especially when so many billions of dollars are involved.

For example, when the General Accounting Office studied the effect of the Pentagon's weighted guidelines method of profit determination, it found that profits in the year 1966 averaged 26 percent higher than profits had been during the period 1959-63. The Defense Department attempted to refute this conclusion on the grounds that it measured "going-in profits," while actual or "coming-out" profits are smaller. But the Pentagon's own profit review shows that going-in and coming-out profits are about the same. Moreover, Department of Defense profit figures show a 22-percent increase in negotiated profits under the weighted guidelines system; this, of course, corroborates the General Accounting Office findings.

My daily experiences in buying nuclear propulsion equipment also indicate to me that profits are increasing. Companies are quoting higher and higher profits in their bids. Several nuclear equipment suppliers are requesting 15- to 20-percent profit; the Navy not long ago received a price quotation for pumps that included a 33-percent profit. The "orthodoxies" of profit on today's Government contracts are outrageous. Those who demand and receive these profits would be well advised to read history. They would learn that Government control will surely follow—to the disadvantage of industry as well as the Government.

Mr. MAHON. But the Pentagon procurement people say that profits are low.

Admiral RICKOVER. You must remember, Mr. Chairman, that high-level procurement officials rarely get involved in the details of day-to-day procurements. They don't see this kind of thing every day, as I do. In spite of their inexperience, and in spite of the tenuous nature of available information, officials in the Pentagon steadfastly maintain that defense profits are low. With each public statement, they attain to more exquisite levels of absurdity.

These procurement officials cite various data that "prove" defense profits to be low. They refer to Renegotiation Board figures, and to the findings of a special profit study that was commissioned by the Department of Defense from the Logistics Management Institute, a private organization dependent on the Department of Defense for its funds. I do not consider these to be valid sources. The Renegotiation Board itself cautions against extrapolating general conclusions about profit levels from its figures. The Logistics Management Institute study relied on unaudited data volunteered by defense contractors; this doesn't seem to be a very good source from which to draw objective conclusions.

In short, the weight of the evidence now available seems to indicate that defense profits are too high. The Joint Economic Committee expressed this in its report on "The Economics of Military Procurement":

Although our present knowledge is incomplete, there is evidence that profits on defense contracts are higher than in related nondefense activities, and higher for the defense industry than for the manufacturing industry as a whole. There is

also evidence that this differential has been increasing. The arguments of the Department of Defense to the contrary are unconvincing.

INFORMATION ON DEFENSE PROFITS

Mr. MAHON. Is there any comprehensive, reliable information on defense profits available to the public?

Admiral RICKOVER. No, sir. That is the point. No one really knows what profits are being made on defense contracts. The Department of Defense has some profit information, but the data are fragmentary and are not made public. In testimony before the Joint Economic Committee last winter, the Deputy Assistant Secretary of Defense for Procurement said:

The detailed data . . . is periodically distributed to key personnel within the military departments. It has not been distributed publicly up to this time . . . since it was somewhat technical, we were afraid we might mislead people rather than inform them.

Mr. Chairman, you have heard this kind of rationalization from Government officials before. "We will not inform the people because they are not capable of understanding; they will only be misled and disturbed. They should trust us—even though we are appointed and not elected." My experience has been that there are too many Government people who think and act in that manner—who act as if they were rulers, and not public servants.

Even if the Pentagon released its information, we still would not have the comprehensive information you are seeking. There is a genuine need for a broad-scope, independent study of defense profits. In the Joint Economic Committee hearings, the Comptroller General said:

In this connection, we know of no complete and comprehensive study that has ever been made on profits actually realized by defense contractors.

The Comptroller General urged that such a study be made. However, when he was asked by the Joint Economic Committee to make a comprehensive profit study, the Comptroller General urged that the study be done by someone else. As I mentioned earlier, the General Accounting Office claimed to lack the necessary authority to require that contractors disclose all the data such a study would require.

The Joint Economic Committee feels that the General Accounting Office should make the study. Let me read you a recommendation from the committee report:

The General Accounting Office should conduct a comprehensive study on profitability in defense contracting. The study should include historical trends of going-in and actual profits, considered both as a percentage of costs and as a return on investment. Profitability should be determined by type of contract, category of procurement, and size of contractor. Information for the study should be collected pursuant to the statutory authority already vested in the General Accounting Office. The General Accounting Office should also devise a method to periodically update and report the results of its profits study to Congress.

In my opinion, Mr. Chairman, if the General Accounting Office will not undertake a profitability study of its own accord, Congress will have to direct it to do so.

There is another, more fundamental problem that relates to the general ignorance of defense profits. This is the lack of uniform cost accounting standards, as I mentioned earlier. Without uniform principles it is impossible to measure actual costs incurred and actual profits earned on defense contracts.

ARMED SERVICES PROCUREMENT REGULATION COST PRINCIPLES

Mr. MAHON. Admiral, what about the cost principles in the Armed Services Procurement Regulation? Don't they give you some grounds on which to measure costs?

ADMIRAL RICKOVER. They do, to a degree. These cost principles deny certain costs, such as advertising expenses and bad debt expenses that have been determined as a matter of Government policy to be inappropriate for Government contracts. However, these cost principles are mandatory only for cost-type contracts, and cost-type contracts amount to but 22 percent of the defense procurement budget. For the remaining 78 percent of defense procurement, the Armed Services Procurement Regulation, section XV, cost principles are only a "guide" for determining costs. Contractors refuse to accept these cost principles in fixed-priced-type contracts. As a result, the "guides" are essentially meaningless.

Controversy abounds when Government contracting officers and auditors are told to use the Armed Service Procurement Regulation cost principles as a "guide" for fixed-price contracts, and contractors contend that these cost principles are not applicable. This conflict accounts for much of the frustration and delay contractors associate with Government business. Because the Department of Defense is unable or unwilling to set a firm standard, a contracting officer might, under a fixed-price contract, allow a cost that under a cost-type contract, would be specifically disallowed. Another contracting officer might take the opposite position. A particular cost, such as a bad debt expense or interest expense, may be allowed on one type of Government contract, but must be disallowed on another.

As I mentioned earlier, decisions as to what costs should be recognized under fixed-price-type contracts are influenced more by the relative bargaining positions of the parties than by equity. Large contractors are bound to have an advantage over small contractors in such situations. I have repeatedly urged that the Defense Department close this loophole in its regulations by making the section XV Cost Principles mandatory for all types of contracts.

Mr. MAHON. Are there any plans to do this?

ADMIRAL RICKOVER. There is a proposal before the Department of Defense right now that would require use of these cost principles on all contracts for which cost is a factor in award of the order. Although this proposal has been reviewed favorably by the Armed Services Procurement Regulation Committee, it has not been implemented.

Mr. MAHON. Why not?

ADMIRAL RICKOVER. Industry organizations have managed to delay implementation, Mr. Chairman. They are naturally opposed to the proposal, and they have put up a strong fight against it. I think the change will eventually go into effect, but first we will have to wait while the Defense Department reaches an accommodation with industry pressure groups.

As I have said before, we need uniform cost accounting standards to put defense contracting on a sound and economical basis. I keep urging that until such standards are put into effect, defense suppliers be required to calculate costs and profits in accordance with the cost

principles in section XV of the Armed Services Procurement Regulation.

Mr. MAHON. And you say that the lack of accounting standards is the major obstacle that prevents us from having an accurate picture of defense profits.

RETURN ON INVESTMENT

Admiral RICKOVER. Yes, sir. But there is another fundamental obstacle.

Mr. MAHON. What is that?

Admiral RICKOVER. The Department of Defense gives no consideration to the extent of a contractor's investment in determining the profit he will earn. Although industrialists consider return on investment the most meaningful test of profitability, defense procurement regulations are concerned solely with profit as a percentage of costs.

This can be misleading—especially on defense contracts, where the manufacturer's investment often is small, due to his use of Government-furnished facilities and Government-furnished capital in the form of progress payments. In the late 1950's, the U.S. Tax Court upheld two Renegotiation Board determinations of excessive profits upon appeal by the contractors involved. The Tax Court determined that the amount of excessive profits was greater than even the Renegotiation Board had determined. In one case, the contractor realized profits, before taxes, of about 120 percent of his invested capital; at the time 99.6 percent of his total sales were to the Government. Another case concerned Air Force contracts. Figured as a percentage of the contract price, the profits on these contracts appeared reasonable—7.5 to 9 percent. But when the Tax Court investigated, it found that the contracts provided 612 and 802 percent profit on the contractor's investment in 2 successive years when 99 percent of his business was with the Federal Government. What may appear to be a small profit as a percentage of cost may be exorbitant when you consider the contractor's investment. That is why contractor investment should be an essential consideration in evaluating profitability of defense contracts.

Let me point out another serious consequence of ignoring a contractor's capital investment in determining profit. When competition is limited, as it frequently is in the defense industry, the contractor who increases his efficiency may, in the long run, actually lose profit under the present system of determining profit. For example, if a contractor estimates it will cost \$100 to do a job, and under Department of Defense profit guidelines he is entitled to a 10-percent profit, he will be paid a \$10 profit. If the same contractor reduces his estimated cost to \$90, he will because his profit is based on costs, earn only \$9 profit. In defense business, the higher the cost, the more profit the contractor makes in the long run. So the contractor has no incentive to invest in new machine tools and in other facilities which could make defense work more efficient and less costly. From the taxpayer's standpoint; the present system provides exactly the wrong incentive for contractors.

I have on several occasions testified on the need to link supplier's investment to profits; other individuals, the press, and congressional committees have also raised this issue. Here is what the Joint Economic Committee report said :

But profit as a percentage of costs or sales is often an inaccurate indicator of true profits. . . . Indeed, profits as a return on investment is the preferred method of measuring profitability. Stockholders are concerned with the return on their investment, not with profits as a percentage of costs or sales. Return on investment is also a better indicator of the profit in relation to the contractor's input.

Despite this widespread recognition of the need to consider capital investment in figuring profits, the Department of Defense has done nothing to implement various proposals to do so. It is studying the problem. My experience with Pentagon studies indicates that the proposals will be studied to death. It is an instance of the familiar Washington refrain: "keep the options open." The instinct is to study and delay as long as possible. Unfortunately, as time goes on and no decision is made, the options are automatically closing; time closes them.

The Department of Defense has been delaying for years on the question of considering capital investment in profit determination; nothing has been done about it. This is another problem that Congress itself will have to solve. I recommend that Congress require that return on investment be considered in establishing the profit of any contract over \$100,000. I suggest that you consider including such a provision in the fiscal year 1970 Appropriation Act.

RENEGOTIATION ACT

MR. MAHON. Admiral, you feel that defense profits may be too high—particularly if they are computed as return on investment—and that there is not enough control over costs and profits on defense contracts. There has been legislation—I am thinking of the Renegotiation Act—specifically designed to prevent contractors from making too much profit. Hasn't this law achieved its purpose?

ADMIRAL RICKOVER. No, sir, I do not believe it has. There are simply too many ways for contractors to get around it.

The Renegotiation Act of 1951 established the Renegotiation Board to recoup excessive profits made by defense contractors. However, due to loopholes in the act and chronic understaffing, the renegotiation process has not been as effective as it could be. There are four fundamental deficiencies in the renegotiation process.

First, much of the work most profitable for industry is excluded from renegotiation because of the exemptions which were included in the act as a result of lobbying by special-interest groups.

Second, the Renegotiation Board is not sufficiently staffed to do its job. The Board has been further weakened with each extension of the Renegotiation Act. In 1953 it had 742 people to look after \$32 billion of defense procurement; today it has fewer than 200 to review \$45 billion. The cutback of personnel and the short term extensions of the Renegotiation Act must make it very difficult for the Board to attract or retain good people. All of this is the result of intensive lobbying effort by industry to kill, or at least emasculate, the Board.

Third, the Board has no sound basis for determining actual costs and profits on defense contracts. It has adopted Internal Revenue Service rules which have nothing to do with the way costs are assigned between Government and non-Government work or between those contracts that are subject to renegotiation and those that are

exempt. Renegotiation cannot be effective when there is no standard for measuring costs and profits on contracts. Internal Revenue Service rules are inapplicable and inadequate for this purpose.

Fourth, contractors are able to average out their profits and shift them from year to year to conceal excess profit in any one year.

Under the Renegotiation Act, contractors have almost unlimited license as to how or when they report profits to the Renegotiation Board. They can change their methods of accounting at will so that Government work absorbs a higher or lower proportion of total expenses in relation to commercial work. By shifting costs from commercial to Government work, a contractor can show low profits to the Renegotiation Board. The Board cannot stop this because its cost rules are based on Internal Revenue Service regulations, which are too flexible to control costs adequately. Internal Revenue Service rules were developed to determine the overall taxable income of a firm without regard to what contracts generated what income. As a result, contractors are able to assign costs among commercial and Government contracts in any manner they wish without violating Internal Revenue Service rules. The lobbyists who succeeded in getting this loophole into the law performed a great service to industry; they merit industry's highest decoration.

Since contractors have great flexibility in accounting for costs, they have equally great flexibility in reporting profits. Let me read you an excerpt from an article in the Wall Street Journal earlier this year. It shows how a well-timed switch in accounting methods can make a major change in a company's reported profit levels:

The Federal income-tax surcharge reduced 9-month earnings by 15 cents a share. But this was more than offset by a change in depreciation accounting, which added about 22 cents a share to earnings.

(The company) changed to the "straight line" method of depreciating its capital facilities retroactive to January 1. Under this method, the cost of an asset is written off in equal installments over the life of the asset. Previously, the company had used the "accelerated depreciation" method, under which more of the cost of the asset is written off in its first few years of use.

In this case, the company was able to raise its reported profits in order to report a rosier picture to stockholders and the public. It would have been just as easy to manipulate profits downward. And you can see other examples of this type of fancy footwork in almost any financial paper you pick up.

I find that contractors juggle the cost and profit figures under defense contracts, just as they do in stockholders' reports. Recently, I became suspicious of a contractor's explanation of certain figures appearing on a labor report I had requested. I asked that a meeting be held with the Government auditor at the contractor's plant to look into the way this contractor was charging costs to Government contracts. The auditor was a bright young man who had been assigned to the plant but a short time. However, he had, through his own initiative, gained access to financial books and records that previous auditors had not been able to see. Based on these records, he found evidence of widespread shifting of costs. By changing his method of depreciation, the contractor had altered his reported profit for the year by about \$3 million. He had shifted another \$2 million in cost by changing, retroactively, his allocation of special tooling costs. He had reversed a \$400,000 engineering charge on a commercial contract and reclassified the

cost as overtime so it could be spread to Government contracts. Similarly, computer design work for a commercial order was reclassified as research and development, and so became an overhead item that could be charged to Government contracts.

After this meeting, Mr. Chairman, the Navy asked the Defense Contract Audit Agency to take an active role in correcting this situation. The Navy suggested that the Agency undertake a comprehensive review of the contractor's accounting, cost control, and procurement practices.

In response to this request, the Defense Contract Audit Agency blandly assured the Navy that there was a "continuing" audit in progress at the contractor's plant. The Agency suggested that it was entirely up to the Navy to correct the situation. In other words, I will now have to divert even more of my time from technical work to solving accounting problems.

Mr. Chairman, the Defense Contract Audit Agency's letter was a classic example of bureaucratized dogmatism. The Agency apparently does not like to be entangled in these accursed practical questions with which it is difficult to deal, which must receive a positive answer and which may make it unpopular with industry. If it persists in this self-defensive attitude it will lead an uneventful, peaceful existence, but it will never get anything done. Power lies with the person—or office—that assumes the onus and the responsibility.

SHIFTING OF COST AND PROFIT FIGURES

Mr. MAHON. If contractors are shifting cost and profit figures for stockholder reports and for Government contracts, do you think they are doing the same thing for the Renegotiation Board, and for Department of Defense profit questionnaires, and the like?

Admiral RICKOVER. You can safely assume that, sir. As long as the contractor is able to avoid showing a high profit in any one year, he is safe from renegotiation. But this does not necessarily mean he did not overcharge the Government on defense contracts in that year.

Costs and profits on all of a contractor's defense work are averaged in renegotiation. The Renegotiation Board never sees what profit contractors realize on individual contracts, regardless of the amounts involved. By averaging high and low profit work, a company can overcharge the Government on sole-source contracts and can then buy in on a new product at a low price in order to set itself up for subsequent sole-source awards, or to gain engineering and production experience that might have commercial application.

Similarly, defense contractors are able to use excess profits in one product line or division of the company to underwrite start-up costs in new product lines or divisions. Under this arrangement, the Government may be subsidizing the entry of large corporations into new markets at the expense of small business. The large firms can average high and low profits to protect themselves from the Renegotiation Board. The Renegotiation Board would never know, because the individual transactions are hidden in averages.

Contractors also have great flexibility in shifting costs or profits from year to year to best serve their purposes. Contracts for most complex defense equipment often take 3 to 4 years or more to complete.

In renegotiation, contractors must report profits on a yearly basis. As a result the profits claimed for uncompleted work can normally be whatever the contractor wishes to make them. He may claim he expects to lose money on the completed order and, therefore, wants to charge a fair share of the loss to the current year. But if he subsequently charges his projected costs, he could claim a profit for that same order. The Internal Revenue Service may tolerate this flexibility for tax purposes, but in renegotiation this same flexibility may permit all but the most flagrant cases of overcharging to clear the renegotiation board unquestioned.

Another deficiency in renegotiation stems from the "standard commercial article" loophole.

Many large Government contracts involving "standard commercial articles" are exempt from renegotiation. Under this exemption, contractors are not required to report profits on such articles if 55 percent or more of the articles are sold in civilian markets. This exemption could exclude from renegotiation the large-scale computers needed for defense, engineering, and scientific work, and perhaps even large military equipment items such as propulsion turbines for naval warships.

RECOMMENDATIONS TO STRENGTHEN RENEGOTIATION ACT

Congressman Gonzalez recommended that the Renegotiation Act be strengthened, first of all by making it permanent. He proposed to eliminate the loophole that exempts "standard commercial articles" from the renegotiation process. Mr. Gonzalez also proposed including construction contracts, machine tools, durable production equipment, and sales to the Tennessee Valley Authority under the act, and lowering the level of reporting from \$1 million to \$250,000.

I agree with his recommendations, and I have made additional recommendations to further tighten the Renegotiation Act. I recommend that industry be required to report cost and profits on every defense contract over \$100,000 on a contract-by-contract basis, and that these costs and profits be reported in accordance with uniform standards of accounting that would disallow costs such as advertising and bad debts which are not appropriate to Government contracts. I recommend that an authorized senior company official be required to certify such reports; that criminal penalties be provided for filing false or misleading data; and that such officials or firms not be allowed to plead *nolo contendere* in these cases. I also recommend that the Renegotiation Act provide for renegotiation of contracts within individual commodity groupings as prescribed by the Federal Supply Catalog, rather than by total company sales.

INFLUENCE OF INDUSTRY ON DEFENSE POLICY

Mr. MAHON. Admiral, there has been considerable concern in Congress recently about the influence of the defense industry on the Pentagon's policies. You have warned Congress about this in the past. I wish you would explain how you feel this influence is exerted. What forum does industry have to get across its opinion on procurement matters?

Admiral RICKOVER. It has been standard practice for years to appoint leaders of the defense industry to ranking civilian position in the Defense Department. There is some value in this—it certainly brings men with business experience and professional acumen into the Government. The problem is that during a lifetime of working in a given field, these men usually acquire a viewpoint that accords with the philosophy and the practices of their business organizations. I do not mean to imply that they are not sincere or that they do not try to do their best. But what they think is right for the Government and what is actually right for the Government may be two different things.

Frequently, these men serve in the Government for a few years and then return to their company. If you could see a list of the men who left the Pentagon in the past year or so, and where they are now employed, you would see how widespread this practice is. I think it would be valuable if there were such a list. I think the Defense Department should be required to keep a register of all upper level military and civilian personnel who go to work for defense contractors.

The effect of this interchange of top officials has been to give the defense industry a network of business-oriented men in policymaking positions in the Department of Defense. This is one major reason why the opinions of industry are so well reflected in defense procurement policy.

In addition to these men serving in high positions in the Pentagon, industry exerts its influence through lobbyists, Washington law offices, and advisory groups. Each of the armed services has various advisory boards and committees, largely staffed by industry consultants. Through these organizations, industry officials have continuing professional and social contact with the highest ranking members of the Defense Establishment.

DEFENSE INDUSTRY ADVISORY COUNCIL

The area in which industry advisers exert the greatest impact is in Government contracting. Industry's forum in this field is an organization known as the Industry Advisory Council. This group used to be called the Defense-Industry Advisory Council (DIAC), before the term "Defense-Industry" acquired the opprobrious connotation it has today. Industry is represented on the Industry Advisory Council by the chief executives of many large defense contractors. The Department of Defense is represented by the service secretaries, assistant secretaries, and high level military officials.

This kind of intimacy between Government and industry can breed problems. This is implicit in an excerpt I have here from the September 1967 issue of *Armed Forces Management* on the Defense Industry Advisory Council:

* * * it would be naive to assume the DIAC discussions can remain entirely free from partisan views. By the very nature of the corporate structure, it is the management philosophy of a given corporate head that permeates that particular organization and forms the basis for the positions adopted by that particular organization. With this premise, often a top manager's evaluation of a given subject area must be redolent of a position that might be taken by his own firm or association.

* * * The DIAC meetings are kept as informal as possible and are conducted without public record other than a general summary of minutes for the benefit of the membership. While both Defense officials and the Council recognize the inherent danger of negative reaction in not making the DIAC proceedings public,

it is nonetheless felt this type of "free climate" is conducive to the most candid and straight-forward exchanges.

There can be no question that the DIAC discussions, to date, are making a major contribution to defense-industry relationships.

The Industry Advisory Council is a quasi-governmental body, made up of Government personnel and private citizens. The Industry Advisory Council staff and expenses are paid by the Government. Industry representatives are not paid for their services on the Council, but the Department of Defense reimburses them for travel and expenses. The Council is not shown on any Department of Defense organization chart. It is, ostensibly, an advisory body. However, the highest ranking Defense Department officials, including the Secretary of Defense and the three service secretaries, are all members of the Council. The Deputy Secretary of Defense chairs the meetings.

Because of its top level connections, the Industry Advisory Council is able to exert a considerable degree of influence over procurement policy; it is much more influential than the Armed Services Procurement Regulation Committee, which is supposed to be the Defense Department's central procurement policy group. A good example of the Industry Advisory Council's influence was the proposal earlier this year that the Pentagon should reimburse contractors for their charitable contributions. I am told that this idea, understandably, was strongly supported by the Industry Advisory Council's industry membership. Government contracting experts, on the other hand, were against it. Each of the three services opposed the plan, and the Armed Services Procurement Regulation Committee voted not to adopt it. In spite of this unanimous opposition within the services, a high level official in the Office of the Secretary of Defense—who was also a member of the Industry Advisory Council—indicated his intent to proceed with the change. Fortunately, the proposal leaked to the press before it could become official policy, and there was so much criticism in Congress and the media that the Secretary of Defense quickly killed the idea. This was encouraging, in that it showed that congressional concern and public interest can, on occasion, be more influential than the Industry Advisory Council. Unfortunately, however, Congress and the public rarely know what the Council is doing, because no public record is kept on Industry Advisory Council activities.

Mr. MAHON. Do you consider this a wise policy? Do you know any reason why these records would be withheld?

Admiral RICKOVER. No, sir. In view of the considerable influence the Industry Advisory Council exerts over defense procurement, it seems to me the public has a right to know what the Council is doing. If its activities are such that they must be hidden from the American people, then the entire Council should be abolished. In my opinion, Congress should require the Department of Defense to provide a detailed public record of all Industry Advisory Council activities. Complete transcripts of all meetings as well as all studies and reports of the Industry Advisory Council or its staff should be made public without delay.

EFFECT OF "ADVISORY BODIES" ON DEFENSE PROCUREMENTS

Mr. MAHON. What has been the effect of these "advisory bodies"?

Admiral RICKOVER. The major effect is a state of mind that exists in many procurement offices in the Department of Defense. Contractors

and their advisory groups can be very persuasive. They have sold many Government agencies on the idea that the prerogatives of industry must be preserved. This explains why high-ranking Government officials often seem more interested in placating industry than they are in protecting the Government's rights. The Department of Defense has been reluctant to correct even the most blatant inequities, if the correction might be costly to contractors. This is not exaggeration; I have been witness to this. Five years ago, for example, I pointed out that the Navy was paying more money than the Atomic Energy Commission for the same work at the same places. At two contractors' laboratories which are jointly funded by the Navy and the Commission, the Navy was paying about \$400,000 more for general and administrative expenses than the Atomic Energy Commission would pay on the same work. The Department of Defense permitted more generous reimbursement of general and administrative expenses than did the Atomic Energy Commission.

Year after year I criticized this anomaly and urged that Department of Defense policy pertaining to this matter be brought into balance with the Atomic Energy Commission policy. For 4 years the Defense Department would do nothing. Finally, after pressure from Congress and the press, the Defense Department now appears to be adopting the less costly Atomic Energy Commission policy.

When I first brought this to the attention of Defense procurement officials, they replied that the amount they had been paying for general and administrative expense at these laboratories was proper and in accordance with Defense procurement regulations. This seemed wrong to me, so I pursued the matter. Eventually, the Navy proposed a change to the Defense procurement regulations under which the Navy could pay the lower amount for general and administrative expenses at these laboratories. The Armed Services Procurement Regulation Committee adopted a provision requiring that "special care" be taken in determining the allowability of general and administrative expenses at Government-owned, contractor-operated plants.

In spite of the new language in the regulation, Defense procurement officials concluded that the higher rate of general and administrative expense being charged to the Defense Department was still proper. The Department auditors and procurement experts did not wish to concede that there could have been anything wrong with their past practices or with the Defense procurement regulations.

Because I would not let the matter drop, the Department of Defense has recently—some 4 years after I first raised the issue—taken action to seek a lower general and administrative rate for work at these two Atomic Energy Commission laboratories—a rate consistent with Atomic Energy Commission guidelines. However, even in the process of notifying the two contractors of the Department of Defense decision, the Government auditors took pains to point out that there was nothing really wrong with the way the contractors were allocating general and administrative costs to defense contracts, but that the Department of Defense was going to disallow such costs in order to bring its prices into line with those of the Atomic Energy Commission.

Mr. Chairman, there is a fundamental issue in this case which is even more important than the money involved. It is the need for uniformity among Government agencies in their treatment of contract

cost. Why should two agencies of Government treat costs differently? This is an issue that we ought to face. But my experience is that the Department of Defense will insist on going its own way and do its best to avoid the basic issue. This is how they deal with difficult problems. Matters which could be decided simply and directly are exalted into abstract categories to which there is no solution.

When the Department of Defense decides to make a change in the Armed Services Procurement Regulation, it conducts a prior check with industry to make sure the change does not conflict with industry's interests. It sends the proposed change to manufacturers and advisory groups for comments. This leads to a situation in which the Department of Defense negotiates with private industry over each of its own regulations. A good example is the bargaining I discussed earlier over the cost principles in section XV of the Armed Services Procurement Regulation. As I explained, these cost principles presently are mandatory only for cost-type contracts. Now the Department of Defense is proposing to extend applicability of these principles to cover fixed-price-type contracts. Industry is fighting this change, and one of its major arguments is the existence of a prior agreement between the Pentagon and industry.

The council of defense and space industry associations used this argument against the extension of section XV to fixed-price contracts. Here is what the council said in a letter to the Department of Defense—

It must not be forgotten that the present section XV cost principles were reluctantly accepted by industry for application to cost-reimbursement business only after the Department of Defense assurance that they would not be made applicable to fixed-price contracts.

I do not believe the Defense Department should have given industry any "assurance" about its regulations, nor was it proper to do so. This is a case where Government's obeisance to industry has come back to haunt it.

The concern for the well-being of industry shows up in other ways, too. In many contract negotiations the Government representatives seem more concerned with protecting the contractor's interests and paying enough profit than with getting the lowest possible cost. Sometimes everyone gets so concerned about the contractor's problems that an onlooker would have difficulty determining which negotiators are from the Government, and which from industry.

Of course, it is the taxpayer who ultimately pays for these practices. Government officials should look out for the Government; industry has the resources, the expertise and the lawyers and accountants to look out for itself full well.

COST-PLUS CONTRACTS

Mr. MAHON. Admiral, one of the most striking points in your testimony today was your statement that all defense contracts are cost-plus in practice. This was disturbing to me because, as you say, we did have a big campaign against cost-plus contracting a few years ago.

Admiral RICKOVER. But they only changed the form, Mr. Chairman. We have new contract forms, but the effect is just the same. You know how it is in the executive branch. Whenever there is a reorganization, about the only real change is in the telephone numbers.

Recently I read that Mr. McNamara, who was a leader in instituting new types of contracts when he was Secretary of Defense, had in his early years cruised to the Orient on the SS *President Hoover*. I well remember that ship because it went aground off Formosa in December 1937. Admiral Meyers, commandant of the Cavite Navy Yard—in the Philippines—where I was then stationed, had also been a passenger on this ship during the grounding.

Cavite was then the jumping-off place insofar as duty in the Navy was concerned. This was not so subtly indicated by its radio call sign—"BARN." The call sign of the Bureau of Navigation in Washington, the Navy's choice duty station, was, as you may surmise, "STAR."

To continue with Admiral Meyers. Shortly after his return he called a meeting of all officers at the Cavite Navy Yard to tell them of his concepts of leadership and efficiency. The only place available was the moving picture theater at the Canacao Naval Hospital where the seats were of the folding type. He told of his experience of the grounding of the *Hoover*. He said he was not surprised this had happened because, having been invited to the captain's mess, he had noted that the latter did not wear garters to hold up his socks. At this point there was a loud thud as all the officers dropped their feet from the backs of the chairs in front of them.

I was later told by the ship's service officer at the yard—who was charged with shopping for the admiral's intimate apparel in Manila—that he wore full length stockings and used garters attached to his waist to hold them up. I am told this was the way ladies attached garters to their corsets in the days gone by to render shapely the forms of those who otherwise might not have attracted attention; the days before free expression, the cult of the spontaneous, and openness were the vogue.

These are not the things which truly make for efficiency. I am sure the captain of the *President Hoover* would have run the ship aground, whether he wore garters or not.

COST OVERRUNS

Mr. MAHON. Admiral, let me ask you about overruns. We have had examples of cost overruns, sometimes of more than 100 percent. I know a faulty estimate might enable a contractor to get a job which he otherwise would not have, but I want to know whether cost overruns are necessarily indefensible? Is it true at times that a cost overrun, even of large magnitude, is defensible?

Let us say that we want a certain weapons system. We conclude we have to have it. We estimate the price is \$1 million, and I use this for the purpose of illustration only.

The people who get the contract to build it, build it for \$5 million. If they have done it efficiently and produced a product that is required, and if there has been no waste, how great is the offense of faulty estimation?

Admiral RICKOVER. You have a good point, Mr. Chairman. Contract overruns per se are not bad.

Overruns have several causes. One cause is the uncertainty inherent in producing complex new weapons. You read daily in the press of substantial overruns, even in the construction of roads, bridges, tunnels,

buildings, et cetera—items where considerable previous knowledge and experience are available. This being so, it is understandable that many research and development projects overrun their estimated cost. When a project is truly developmental, there are many unknowns. During the course of the development these unknowns come to light. They always add expense, yet they must be accepted if the project is to be completed successfully. The one who recommends the project to you in the first place cannot be aware of these unknowns. If he were aware, the project, by definition, would not be developmental.

Another common and very human cause is the desire of anyone in Government who wants a project to estimate the price low enough so he can "sell" it. Let us frankly face this fact; we are dealing with human beings.

This problem faces not only ordinary mortals, but theologians as well. I am reminded of Pius II and the church and palace he built, as recounted in *The Memoirs of a Renaissance Pope*.

The Pope had received many insinuations against his architect, a Florentine named Bernardo—that he had cheated, that he had blundered in the construction of the church and the palace, that he had spent more than 50,000 ducats when his estimate had been 18,000. The law would have obliged the architect to make up the difference.

Pius, when he had inspected the work and examined everything, sent for the man. The architect arrived in some apprehension, since he knew that many charges had been brought against him. Pius said, "You did well, Bernardo, in lying to us about the expense involved in the work. If you had told the truth, you could never have induced us to spend so much money and neither this splendid palace nor this church, the finest in all Italy, would be standing. Your deceit has built these glorious structures which are praised by all except the few who are consumed with envy. We thank you and think you deserve special honor among all the architects of our time"—and he ordered full pay to be given him and in addition a present of 100 ducats and a scarlet robe. He assigned him new commissions and bestowed on his son the grace he asked. When he heard the Pope's words, Bernardo burst into tears of joy.

You should be skeptical of those who do not overrun R. & D. projects. It is probably the case that they have overestimated the cost. As you are aware, when a project has high priority, and the Defense Department and Congress both want it done quickly, the cost is not too closely looked at.

To assess an overrun, you have to look at the causes. One major cause of overruns is inefficiency—because, as I explained before, nearly all defense contracts are cost-plus. Recognizing that in such circumstances contractors have little incentive to control costs, the question is how do you make sure that the corporation operates efficiently.

Mr. MAHON. It seems to me that one way is to move away from these cost-plus contracts. Can we do that? Why are we in these cost-plus situations?

Admiral RICKOVER. It starts with the fact that most defense procurement is noncompetitive. Without competitive bids, the Government can only negotiate costs with the contractor. Contract prices are then determined, not by competitive market forces, but rather by estimating the contractor's costs and adding a percentage of the costs for profit.

Mr. MAHON. Yes, but this is not really cost-plus, is it, because the contractor will lose out if his costs are higher than he estimated?

Admiral RICKOVER. Not necessarily. There is a mechanism through which a contractor can be paid for his unexpected cost. He can file a claim against the Government. Through claims, defense contractors can convert any contract into a "cost-plus" contract.

Mr. MAHON. How does that work?

CONTRACT CHANGES

Admiral RICKOVER. Contractors frequently submit claims for remuneration for extra work they allegedly performed beyond the requirements of the contract. Some contractors retain law firms that specialize in presenting these claims and become proficient in finding loopholes in contracts. These firms are generally paid according to how much they can get from the Government. I am sure you know that such law firms are endemic in Washington. These law firms are common practitioners of the interchange system I mentioned a few minutes ago. There is a continuing movement of personnel back and forth between these firms and Government legal offices. One prominent Washington attorney, who served most of the 1950's as general counsel to one of the military departments, today handles claims against the Government for several large defense contractors. Mr. Chairman, I consider this to be a particularly objectionable example of the interchange syndrome I discussed earlier. You are trained in the law, are you not, sir?

Mr. MAHON. Yes, I am.

Admiral RICKOVER. Then you will understand what bothers me in this setup. In our adversary system of justice, a knowledge of how the other side prepares its cases and organizes its evidence can be extremely valuable to an attorney. Obviously, if a lawyer spends years as a counsel in the Department of Defense, he will come away with a detailed knowledge of the way a Government case is prepared as well as invaluable personal contacts within the Department. This gives him a considerable advantage in law suits against the Government. Perhaps this practice is not strictly a violation of the canons of legal ethics, but somehow it does not seem moral to me that one learns "tricks" in Government service to be used against the Government itself. It certainly is not compatible with the concept that an attorney is an "officer of the court." It is tantamount to a son who learns the weaknesses of his family over the years and then turns this knowledge against his own family.

There is another aspect of this claims situation that disturbs me. Frequently, contractors include in their claims the legal fees involved in preparing and prosecuting the claim. Thus, if the contractor wins his case, as he nearly always does, there is a good chance the Government will pay the contractor's legal fees. If this is fair, it seems to me that the converse is fair, too. If the contractor's claim is found to be unwarranted and disallowed, he should be required to reimburse the Government for all of its legal expenses.

Usually, contractors' backup information for claims is quite detailed and the legal arguments extensive. Some law firms begin preparing and documenting claims the day the client company starts work on a

contract, so that at the time of contract completion the claim can quickly be submitted with voluminous backup. The Naval Ship Systems Command recently received a \$45 million shipbuilder claim. It came in 15 bound volumes, each 2 to 3 inches thick. The volume included charts, tables, and photographs the company had taken throughout the ship construction period to document various points in the claim.

The preparation of this claim must have required considerable time and manpower; yet during the same period that the claim was being prepared, I could not get this shipyard to devote adequate design and procurement effort to new construction ships under my cognizance. I was told the cost of preparing this claim was something in excess of \$300,000; eventually the Government will probably have to pay for this as part of the claim.

The actual costs of performing the contract are seldom supported by the accounting records. The contractor explains that his accounting system does not separately identify the cost of changes or of extra work. Therefore, he prepares an estimate which is usually inflated to give him room to negotiate an overall settlement that will be satisfactory to him. The contractor then submits his claim and waits.

On the Government side, the claim arrives in the midst of urgent problems involving day-to-day operations. Because the Government is forced to handle so many claims, it cannot devote adequate attention to defend itself properly against unwarranted claims. The Government people spend as much time evaluating the claim as they can afford without jeopardizing other urgent Government business. Since many claims are several months or even years old, Government officials often have little first-hand knowledge of the facts surrounding the claims. As a result, the Government must rely heavily on the contractor's statement of the circumstances. Such statements, of course, tend to be presented in the most favorable light from the contractor's standpoint.

Once the contractor wins a settlement on one of these claims, he is encouraged to submit claims on other Government orders. He knows the odds are in his favor; he has nothing to lose if the claim is disallowed. Some manufacturers submit claims—valid or not—almost as a matter of course on Government contracts.

In preparing their case, the lawyers on either side concentrate their efforts on the legal issues; less attention is paid to the actual costs involved. Then, if the Government is found even partially liable, the contractor has the advantage in negotiating the cost the Government must pay, since there are no accounting records to substantiate the claim. The Government seldom knows what it is really paying for in claim settlements.

In a recent case, a contractor submitted a \$70 million claim on a \$70 million fixed-price contract. The contractor's supporting documentation filled dozens of file cabinets. The Government simply did not have enough people to review the claim in detail, much less analyze the supplier's voluminous backup material in order to arrive at a proper basis of settlement on the individual items. Actually, extra people would not have helped much because this contractor's accounting system does not identify the cost of changed work or the cost of resultant

delays. This claim was settled on a lump-sum basis, at about 90 percent of the amount the contractor claimed.

Many claims result from contract changes. Because much defense equipment is complex and requires a long time to build, the Government often has to make technical changes during the life of the contract. Although most Government people try hard to keep these changes to a minimum, they are often necessary in order to take advantage of operating experience or of new developments. Some changes are of an urgent nature and have to be authorized before the work can be priced to prevent a contractor from proceeding with unnecessary work in areas affected by the change.

Once a large unpriced change has been made the door is open. These changes are often complex; they require a lengthy period to prepare the necessary estimates and negotiate the price. Frequently, a large backlog of unpriced changes develops, and this backlog is still pending at the time the contract is completed. The contractor is then able to combine these changes with whatever other claims he can develop, valid or not, and submit a single large claim against the Government.

In these circumstances, it is usually not possible to determine the cost of the individual changes for which the Government is responsible. The Government is forced to negotiate a lump settlement. It is here that the contractor has the Government at a great disadvantage.

Contractors are very careful not to account for change orders separately. There is no requirement that they do so. Thus contractors can use change orders as a basis for repricing these contracts. They have almost unlimited freedom in pricing change orders because their accounting system will never show the cost of the work. The Government can never really evaluate the amounts claimed or check to see if it paid too much. Rather than dispute claims in ignorance, the Government is frequently forced to negotiate lump-sum settlements. Contractors take this into consideration in preparing their claims. The claims are made sufficiently large so they will still win their desired settlement, even when there is the appearance of a compromise.

I recognize that there is no way to stop contractors from submitting claims. However, a number of things can be done to discourage unwarranted claims and to avoid unnecessary payments.

First, the executive branch should maintain contract experience records which reveal such matters as original and final prices of contracts the amounts of unfounded and exorbitant claims submitted by contractors, and the amounts of excessive profit, so that this information can be considered by all Government agencies prior to awarding subsequent contracts.

Second, contractors should be required by contract to keep records that show the actual cost of changed work so that the Government would have some way to prevent contractors from bailing themselves out of cost overruns that are their own responsibility.

Third, the Department of Defense should strengthen its claims staffs so that more thorough reviews of contractor claims can be undertaken. Where the claim is complex and voluminous, I recommend that the Department of Defense hire law firms to defend the Government. When a claim is found to be unwarranted, the contractor should pay all the Government's legal expenses, including the fees for these private firms.

Fourth, I recommend that a Government lawyer who resigns to go

into private practice not be allowed to prepare or prosecute a case against the Government on behalf of a Government contractor for at least 5 years following his resignation.

NEED TO IMPROVE CONTRACTING OPERATIONS

Mr. MAHON. Admiral, you have been emphatic on the point that the Department of Defense is not doing enough to improve its contracting operations. Have you passed on your criticisms to defense procurement officials?

Admiral RICKOVER. Yes, sir; I have raised these issues with my superiors in the Navy and the Office of the Secretary of Defense. I have complained about poor procurement practices in meetings and in correspondence for years. In fact, just 2 weeks ago I wrote to the Chief of Naval Material about the actions of a procurement official in the Office of Naval Material. This official has a habit of making inaccurate and unverified statements in official documents; on several occasions other Navy people and I have had to take time from our primary duties to correct his mistakes. In addition, this official has delayed a number of contracts under my cognizance. In one case, he disapproved one of my contracts on grounds that the profit to the contractor was too low. In that case, it took an exchange of six letters to clear up the matter. I call these letters the "nickel letters" because, in order not to delay the contract, I agreed to increase the contractor's profit by 5 cents—from \$1,147,023 to \$1,147,023.05 on a \$50 million contract. I thought it was worth a nickel of Government funds to avoid delaying the contract any further. In testimony before the Joint Economic Committee last November, Senator Proxmire asked for copies of these letters. They are included on pages 54 to 59, part 2, of the Joint Economic Committee hearings on economics of military procurement. You may wish to read them.

Mr. Chairman, I have a difficult enough time keeping profits at a reasonable level in my dealings with industry; it should not be necessary for me to fight the same issues with a Government representative. He should be interested in keeping the profit—and thus the price—on all contracts as low as possible.

I do not want to devote more of my time to correcting the errors of this official. Therefore, in my recent memorandum, I asked the Chief of Naval Material to reassign responsibilities in his office so that this particular official no longer has anything to do with contracts under my cognizance.

Mr. MAHON. Admiral, would you please provide a copy of your memorandum and the reply for the record?

Admiral RICKOVER. Yes, sir; I will.

(The information follows:)

8 JULY 1969.

MEMORANDUM FOR THE CHIEF OF NAVAL MATERIAL

Subject: Action by the Naval Material Command Procurement Control and Clearance Division—Deleterious impact on naval nuclear propulsion program.

References: (a) Director, Procurement Control and Clearance Division, NMC, memorandum to CNM dated June 18, 1969; (b) CNM memorandum MAT 02 serial 01762, dated June 20, 1969, to COMNAVSHIPS; (c) PM 13 memorandum to CNM serial 023, dated June 25, 1969; (d) COMNAVSHIPS memorandum to CNM serial 0416, dated June 27, 1969; (e) CNM memorandum MAT 022 serial 03105, dated August 22, 1968, to COMNAVSHIPS.

I have received a copy of a memorandum to you from [] Director, Procurement Control and Clearance Division of the Naval Material Command, dated June 18, 1969, reference (a), which was an enclosure to reference (b).

In his memorandum, [] refers to a "potentially dangerous contracting situation" in existing and planned contracts with [] for construction of nuclear-powered carriers, submarines and frigates.

I do not know what caused [] to write this memorandum. It appears he is concerned that [] may not be receiving adequate consideration for the lead ships of the new frigate and attack submarine classes (DXGN-1 and SSN 688). However, rather than discussing the basic considerations involved in the present planning for nuclear ship construction, he merely itemized the total nuclear construction work assigned or being considered for assignment to [] including contracts for which [] was the low bidder in competition with [] and another shipyard. The dollar value of [] work cited by [] is overstated by a factor of two, and he neglects to mention that the ships involved are spread over 7 authorization years (fiscal year 1967 through fiscal year 1973).

As brought out in comments by [] in references (c) and (d) with which I concur, most of the statements in [] memorandum contain errors. I do not understand why he made so many errors, since the correct information is readily available to him. His memorandum would indicate that he is not adequately familiar with the pertinent facts concerning the issues he raised. Several of those issues are basic to contract matters over which his Procurement Control and Clearance Division exercises authority.

I am concerned that a memorandum containing such inaccuracies could be presented to you for consideration. For this reason, I consider it necessary to add my comments to those of []. The fact that [] did not take the time to ascertain all of the facts before writing to you has required many senior officers and civilians to divert many hours to preparing memoranda to you to correct the inaccuracies in his statements. I know of three admirals, three captains who are ship acquisition project managers, and six senior civilians who have had to spend a collective total of more than 200 hours preparing, coordinating, and processing these memoranda through the chain of command. This effort had to be diverted from urgent Navy shipbuilding programs; there is simply no way to measure the adverse impact of such use of top Navy talent.

Unfortunately, this is not the first time my efforts and those of my senior people have been devoted to correcting statements made by [].

For years [] has tried to change my method of contracting for nuclear propulsion plant components—a method which has proven to be successful for many years. My people have had to spend much time explaining why [] proposals were not in the best interests of the Government.

As you know, NAVSHIPS places cost-plus-fixed-price-fee (CPFF) prime contracts with [] and [] to develop and furnish specific types of nuclear plants. The components for these plants are then procured from industry by these two prime contractors by means of competitive fixed price type subcontracts. Each of these subcontracts receives detailed technical and contractual review by NAVSHIPS. This procedure has been followed since the beginning of the nuclear propulsion program and has proven effective and economical in obtaining the components we need for safe and reliable operation of naval nuclear propulsion plants.

Notwithstanding this record, [], in 1963, asked NAVSHIPS to change this method of contracting for nuclear components. The reason he gave was that the Department of Defense desired to reduce the dollar volume of CPFF contracts. He requested that NAVSHIPS use a contract scheme he had devised; this would show a decrease in CPFF contract amount by using, in effect, two contracts for each prime contractor—a CPFF contract with the prime contractor for the prime contractor's own work, and a fixed-price contract for all fixed-price component subcontracts. [] scheme would enable the Navy to claim a "saving" of 25 cents on every dollar in the fixed-price contract, since guidelines for measuring "savings" in the Department of Defense cost reduction program allow 25 percent of the dollar value of all fixed-price contracts converted from cost-plus-fixed-fee contracts to be reported as "savings."

NAVSHIPS opposed this change since there would be no actual change in the amount of work being done on a fixed price basis; since the actual costs of administering two prime contracts or a two-part contract in place of one contract would be higher; and since there was no *real* benefit to the Government from

the proposed scheme. After considerable time and effort by myself, my staff, and senior officials in the Bureau of Ships and the Office of Naval Material over a period of months, the Vice Chief of Naval Material in 1963 agreed that in the circumstances my method of contracting was appropriate and should be continued.

Despite the 1963 decision of the Vice Chief of Naval Material [—], in July 1964, again raised this issue. At that time, without consulting me, he disapproved a proposed Bureau of Ships prime contract for nuclear components. Again he proposed his "two contract" scheme which would show an apparent reduction in the amount of OPFF contracting. Again it required much time and effort of myself, my staff, as well as top level personnel in the Office of Naval Material to resolve this issue. Because of [—], continued insistence it finally became necessary for the Chief of Naval Material himself to review the issues involved. Following his review he concurred that my method of contracting was appropriate in the circumstances. He directed that he be informed immediately if further contract clearance actions by the Office of Naval Material would delay procurements for the naval nuclear propulsion program.

[—], however, did not let the matter rest there. In a speech given on May 3, 1967 before the Naval Research Advisory Committee he recommended, among other things, the project managers, systems commanders, and so forth, should be precluded from "dictating types of contracts, by requiring all directives relating to type of contract to be reviewed and approved, prior to issuance by CNM." To support his recommendation he stated:

Admiral Rickover, for example, will not make an incentive or fixed price contract—only OPFF. [—], will not make a fixed price contract.

His statement was inaccurate, as were other statements in his speech. As he should know, for over 20 years I have insisted that nuclear components be produced under fixed price type contracts and subcontracts.

Shortly after this speech, [—], your then Deputy for Procurement, arranged a meeting among [—], my representatives, and others, to review [—] statements. At the conclusion of this meeting, [—] stated that [—] statements reflected poor judgment concerning the matters covered in his speech.

In view of this long background, I do not understand why [—] made the statement in his June 18, 1969 memorandum:

It is noted that * * * [—] is the sole source for the nuclear propulsion plants for both classes of ships (DLGN and DXON) despite the millions we have expended to maintain two contractors [—] in the reactor business.

As [—] pointed out in reference (d):

"The Navy has not spent millions to maintain two contractors in the reactor business. The Navy places prime contracts with [—] and [—] to develop and furnish specific types of reactor plants, the components for which are procured competitively from industry. The DXGN and the DLGN utilize the same reactor plant which was designed by [—]. Since the components for the nuclear reactor plants for both types of ship are identical, it is more efficient and economical to procure them through the same prime contractor."

I could add more to this memorandum by discussing other instances where, in order to protect the interests of the Government, great amounts of my time and that of my senior people have been consumed because of [—] actions in matters under my cognizance. For example, in 1967 and 1968 he delayed a number of contracts for nuclear components because he considered that the fixed fees to the contractors proposed by NAVSHIPS were too low. You will remember the exchange of correspondence initiated by [—] in 1968 when he disapproved placing one of these prime contracts. In this case he considered that NAVSHIPS should pay a higher fee to the contractor than NAVSHIPS considered appropriate—a fee the contractor had accepted on similar contracts in the past. You will recall that I reluctantly agreed to increase the fixed fee by a nickel in order to avoid further delay in a \$50 million prime contract. This exchange of correspondence—the "nickel letters"—is contained on pages 54 through 59 of the Joint Economic Committee Hearings on the Economics of Military Procurement, Part 2, November 14, 1968.

You may recall the issue mentioned by [—] in reference (d) concerning the opposition of [—] office to the negotiation of a contract with [—] for the nuclear-powered frigates DLGN's 86 and 87. [—] office wanted to declare the bids received from [—] and [—] to be competitive, and to award the contract to the low bidder—[—]—but without nego-

negotiations. NAVSHIPS considered the bids too high and desired to negotiate with [] in order to obtain a lower price. Ultimately it required your decision, overruling the recommendation of [] office, to permit NAVSHIPS to negotiate with []. As a result of these negotiations the Navy was able to obtain a substantial reduction in the price of these ships. However, the NAVSHIPS representatives spent more time in obtaining approval from the Naval Material Command to negotiate with [] than they spent in getting [] to agree to lower their price.

From my experience with [], it appears he does not understand all that is involved in procuring complex technical equipment. His statements indicate that project managers or systems commanders can or should readily adapt their programs and technical management to the type of contract he insists upon.

[] has frequently raised contract issues relating to naval nuclear propulsion. No matter how many times an issue is resolved it keeps on rearing its head. These issues take up considerable time and effort—time and effort which we need to devote to our technical work. Invariably, after these contract issues have been aired, [] has been shown to be incorrect.

The issue facing me is my increasing inability to carry out my assigned responsibilities because of unwarranted interferences by those who do not share or contribute to getting the job done—but have the authority to interfere at their volition. You must realize that the situation described in this memorandum is one of the examples of "overmanagement" in the Department of Defense about which I have testified many times. You must recognize the deleterious effect it is having on the Navy.

It is important that this intolerably inefficient situation be remedied as soon as possible. I therefore request that you reassign responsibilities within your office so that [] no longer has review or approval authority over contracts involving naval nuclear propulsion work.

H. G. RICKOVER, *Deputy Commander for Nuclear Propulsion.*

Copy to: Commander, Naval Ship Systems Command.

Project manager, SSN 688 and later design SSN submarine project (PM 13).

Director, Strategic Systems Projects Office.

(No reply to this letter has been received.)

RECOMMENDATIONS FOR IMPROVING DEFENSE PROCUREMENT

Mr. MAHON. Admiral, I want to thank you for your frank comments on the defense procurement situation. We have all heard and read many generalities about this in the past few months, but you have talked to us in specifics, and you have made numerous specific recommendations to correct the problems you have pointed out. I think it would be valuable if you would summarize all the recommendations you made today.

Admiral RICKOVER. Yes, sir. Here are my recommendations:

1. This committee should include in the fiscal year 1970 Appropriations Act a provision to require the Department of Defense to review and approve all subcontracts in excess of \$100,000 under any contract in which the Government shares in cost overruns or underruns.

2. This committee should require the Department of Defense to maintain records and report to Congress regularly regarding major subcontracts—those in excess of \$100,000. These reports should reflect the extent of competition in the award of the subcontracts and the amount of subcontracted work that goes to contractors in the top 100 contractors list.

3. This committee should direct the General Accounting Office to conduct a detailed review of prime contractor procurement practices in contractor plants where the Department of Defense relies on an "approved" purchasing system.

4. The Truth-in-Negotiations Act should be strengthened to require contracting officers to obtain and contractors to provide cost data on

all contracts in excess of \$100,000—unless such contracts are awarded as formally advertised procurements. The Department of Defense should not be allowed to waive the Truth-in-Negotiations Act for any contractor with more than \$1 million of Government business annually. This committee should ask the Justice Department to investigate the antitrust implications when entire segments of industry, such as computer manufacturers, material suppliers, and others, appear to take a united stand in refusing to provide cost and pricing data.

5. Congress should take an active interest in the General Accounting Office study of the feasibility of uniform accounting standards. Upon completion of the study, Congress should enact a legal requirement that all defense contractors account for cost and profits on their Government work in accordance with uniform cost accounting standards.

6. The General Accounting Office should conduct a comprehensive study on profitability in defense contracts. The study should consider going-in as well as actual profits both as a percentage of costs and as a return on investment. The GAO should establish a study on a continuing basis to provide regular reports on defense profits to Congress and the public. If the General Accounting Office will not undertake a profitability study on its own accord, Congress should direct it to do so. If the General Accounting Office persists in its claim that it lacks the necessary authority to undertake a comprehensive profit study, Congress should enact legislation giving it the authority it considers necessary.

7. If the General Accounting Office continues to abdicate its responsibility, Congress should consider establishing a new organization to undertake independent and comprehensive reviews of Government operations.

8. The Defense Department should make the cost principles in section XV of the Armed Services Procurement Regulation mandatory for all types of negotiated contracts. It should resist the attempt of industry organizations to defeat or delay the proposal currently before the Armed Services Procurement Regulation Committee.

9. Congress should require by law that return on investments be considered in establishing the profit of any contract over \$100,000. This should be included as a provision in the fiscal year 1970 Appropriations Act.

10. The Renegotiation Act should be made permanent. In addition, the loophole that exempts "standard commercial articles" from the renegotiation process should be eliminated. The Renegotiation Act should be extended so that it applies to construction contracts, machine tools, durable production equipment, and the Tennessee Valley Authority. The level of reporting contracts for renegotiation should be lowered from \$1 million to \$250,000. Contractors should be required to report costs and profits on every defense contract to the Renegotiation Board on a contract-by-contract basis. Costs and profits should be reported to the Board in accordance with uniform standards of accounting appropriate for Government contracts.

An authorized senior company official should be required to certify reports to the Renegotiation Board with criminal penalties for false or misleading data. Such officials should not be allowed to plead *nolo contendere* in these cases. The Renegotiation Act should provide for

renegotiation of contracts in individual commodity groupings as described by the Federal Supply Catalog, rather than by total company sales.

11. Congress should require the Department of Defense to provide a detailed public record of all Industry Advisory Council activities. Complete transcripts of all meetings as well as studies and reports of the Industry Advisory Council or its staff should be made public as soon as they are available.

12. The executive branch should maintain contract experience records which reveal such matters as original and final prices of contracts, the amounts of unfunded and exorbitant claims submitted by contractors, and the amounts of excessive profits on contracts so that this information can be considered by all Government agencies prior to awarding of contracts. Contractors should be required to keep records that show the actual cost of changed work. The Department of Defense should improve its ability to handle contractor claims so that more thorough reviews can be undertaken. In cases of complex and voluminous claims, the Department of Defense should hire private law firms for the defense. When a claim is found to be unwarranted, the contractor should pay all the Government's legal expenses, including the fees for these private firms.

A Government lawyer who resigns to go into private practice should not be allowed to prepare or prosecute a case against the Government on behalf of a contractor for at least 5 years following his resignation.

Mr. MAHON. I want to thank you for sharing with us the insights you have developed during your 50 years in public service.

Admiral RICKOVER. I feel a deep responsibility to share with you what I have learned during my career in Government, Mr. Chairman. The acquisition of knowledge creates the responsibility for transmission of knowledge. It is my duty to pass on my experience and the lessons I have learned. Perhaps my feelings are best expressed in the words of the Talmud: "It is not for you to complete the task, but neither have you the right to desist from it."

I did not come here for the purpose of personal aggrandizement, or of winning favor. My purpose in commenting on Defense procurement is to advise you of how the Government can obtain the best equipment at the lowest possible price. I am convinced that congressional action is necessary to achieve that goal. Judging from the record of the performance of the Department of Defense and the General Accounting Office, it is evident that Congress will have to take the initiative for improving defense procurement.

Problems are always opportunities. You have a great opportunity to face this procurement problem head on. In this connection I am reminded of Capt. Thomas Jefferson Jackson See, who was the last naval officer to be designated "professor of mathematics" in the U.S. Navy. He was the astronomer at the Mare Island Navy Yard when I was there on a destroyer in 1923. We had magnetic compasses—not gyrocompasses—in destroyers in those days. It was my duty, as a new ensign, to take the compasses ashore and calibrate them by measuring the earth's magnetic force. Professor See took the trouble to assist me. I have always been grateful to this kindly gentleman. He even gave me his calling card engraved with all the signs of the zodiac.

Later I learned that once, on returning from leave. He was greeted by the commandant of the yard with, "While you were on leave, Professor, we took down all your stars and polished them up." You could do what the commandant did—take down our procurement regulations and polish them up.

As you are aware, Mr. Chairman, the military is being castigated for inefficiency. It is also fashionable today to blame many of our problems on the "military-industrial complex." Some of these complaints are well founded. However, the phrase "military-industrial complex" has become an evocative symbol. Not that it is meaningless, but it serves only to fix blame or excite expectations rather than to demand analysis. Analysis requires the day-to-day digging out of details. This unglamorous work is not compatible with the notion that you can solve large problems with simple phrases. There seems to be a division of labor between those who dig out the details and those who think about them.

What is so frustrating in dealing with the Department of Defense is that even when enough details have been unearthed to show the full outline of the problem, practically nothing is done about it. The Pentagon is content to conduct studies. These studies have been trumpeted as a great management devise by the public relations staff—the counterfeiterers of administration. But in the Pentagon, the word "studies" is a euphemism for inaction and delay.

Perhaps in their continued preoccupation with making surveys and studies, and requesting status reports, Defense officials are suppressing their own feeling of emptiness which, for its part, suppresses everything luminous in those subject to them.

The military should not bear all of the criticism for inefficiency in defense procurement. Civilians in the Department of Defense—and Congress as well—deserve a share of the blame. The Department of Defense should see to it that the laws which do exist are carried out. Where the law is inadequate, Congress should strengthen it.

Mr. MAHON. In order to do our part of the job, we have to know what is going on in the Defense Department. That is why I appreciate your frank and open testimony. It has been extremely valuable.

Admiral RICKOVER. Thank you, Mr. Chairman.

MONDAY, JUNE 9, 1969.

TESTIMONY OF MEMBERS OF CONGRESS AND OTHER INDIVIDUALS AND ORGANIZATIONS

ARMY PROCUREMENT OF XM-705 TRUCKS

WITNESS

HON. JOHN BRADEMAS, A REPRESENTATIVE IN CONGRESS FROM
THE STATE OF INDIANA

Mr. MAHON. The committee will come to order.

We are pleased to have our able friend and colleague, John Brademas, before the committee today. I believe you are accompanied, Mr. Brademas, by Mr. Coughenour, Mr. Podnos, and Mr. Schuster.

Mr. BRADEMAS. Yes, sir.

Mr. MAHON. Their names will be appropriately recorded in the record.

I believe you had expressed an interest in the XM-705 Army truck.

Mr. BRADEMAs. Yes, Mr. Chairman.

Mr. MAHON. All right; why don't you proceed?

Mr. BRADEMAs. Thank you very much, Mr. Chairman.

At the outset let me say that I read very fast.

Mr. Chairman, I very much appreciate the opportunity to appear before this distinguished subcommittee. My testimony this morning is directed at a problem of growing concern to Members of Congress and to the American people and I know to the distinguished chairman of the Committee on Appropriations.

I refer in general to increasing evidence that the Department of Defense is willing to pay excessively high costs for weapons systems and equipment that often provide only marginal improvements in combat effectiveness.

Mr. Chairman, I know that members of this subcommittee are vitally interested in both our national defense and our national economy. Your concern is to act upon Defense Department requests for weapons and equipment essential to our national defense while at the same time disapproving the expenditure of public-tax moneys when not essential to our national security.

I requested the opportunity to appear before your subcommittee, Mr. Chairman, to bring to your attention some details of a Government procurement with important implications for the public interest in terms both of our national defense and our national economy.

Specifically, I intend to demonstrate that the U.S. Army is now procuring a 1¼-ton truck—the XM-705—which will burden the American taxpayer with as much as \$150 million in unnecessary expenditures. Yet abundant evidence shows that the XM-705 will produce at best only a modest improvement in combat effectiveness.

Moreover, the Army seeks to buy this vehicle, with all the risks attendant to buying a vehicle that exists only on paper despite the fact that a modestly improved version of an existing vehicle, the M-715, can substantially meet the Army's requirements.

Mr. Chairman, these conclusions are not merely my own. The General Accounting Office, which at my request has undertaken an examination of the XM-705 program, only last week made the following tentative observations:

It appears that the XM-705 does not represent a real stride forward in terms of combat effectiveness. Rather, it appears to offer only a relatively small increase in terms of combat effectiveness over the XM-715 1¼-ton truck already in the Army system and no clearly significant superiority over the improved XM-715 proposed by the Kaiser Jeep Corp. Accordingly, the XM-705 program appears to represent an excessive expenditure for marginal improvements in combat effectiveness over the improved XM-715.

Moreover, Mr. Chairman, the Army's ill-advised decision to procure the XM-705 flatly and unconscionably contradicts the explicit conclusions reached by the Army's own Army Materiel Command. This report, prepared by the Systems and Cost Analysis Division of

the Army Materiel Command, dated July 8, 1968, compares the proposed XM-705 both with the existing and the improved M-715. The report finds:

The XM-705 has all the uncertainties associated with a vehicle that does not exist * * *. With the improvements proposed, an adequate design guarantee and warranty, and contractor liability established by demonstration to Government test specifications, there are no known performance or effectiveness preclusions to selection of the improved M-715.

With respect to this report the Chief of the Vehicles and Equipment Division, Maintenance Directorate, Army Materiel Command, states flatly:

We conclude that there is questionable necessity for going through the expense of developing a replacement vehicle at this time.

He recommended that:

The M-715 series of trucks be considered for adoption as the standard replacement for the M-37 series and that procurement of the M-705 series of trucks be held in abeyance pending the acquisition of more definitive operation and maintenance experience with the M-715.

Thus, Mr. Chairman, the evidence available at this time, developed both by the General Accounting Office and, indeed, by the Army itself militates strongly against procurement of the untested, untried paper XM-705 at an additional cost to the American taxpayer estimated by the Army Materiel Command to be \$150 million. Here again is the conclusion from the Army Materiel Command report I have already cited.

I believe this conclusion is particularly worthy of underscoring. Here I quote:

Introduction of improved M-715's requires fewer vehicles in the total fleet and approximately \$150 million less for the total fleet life cycle costs than does the XM-705.

It is for these reasons, therefore, that for the first time in my 10 years in Congress, I have requested an opportunity to testify before your subcommittee.

Mr. Chairman, let me elaborate: I first began looking into the Army's procurement of a new fleet of 11¼-ton vehicles this past January when officials of the Kaiser Jeep Corp., which has a plant located in the congressional district which I represent, brought to my attention the Army's intention to procure the XM-705 from the General Motors Corp.

After a period of several months of investigation on my part, which included meeting personally with the Secretary of the Army, Mr. Stanley R. Resor, on February 18, 1969, I became increasingly convinced that the XM-705 program could not be justified. I first transmitted my concern to you and to your committee in a letter dated March 19, 1969. At that time, I indicated my serious reservations about the XM-705 program. Concurrently, I advised the Comptroller General of the United States of my concern about the XM-705 program and requested that the General Accounting Office undertake a thorough investigation.

After several months of continuing inquiry on my part, and on the basis of the preliminary review submitted to me by the General

Accounting Office, I am thoroughly convinced that the XM-705 program has not been justified by the Army, and that, as available expert evidence indicates, this program will cost the American taxpayer many millions of dollars beyond what is required for an adequate 1¼-ton truck fleet.

HISTORY OF THE 1-1/4-TON TRUCK PROGRAM

Let me briefly summarize the U.S. Army 1¼-ton truck program.

At the present time the Army has about 30,000 M-715 trucks. This 1¼-ton truck is a conventional mobility truck which first went into production in January 1967, at a cost of less than \$3,500 apiece to the Government.

Notwithstanding the success of the M-715 in the field, the Army has embarked on a program to procure another 1¾ ton conventional mobility truck—the XM-705. The complete acquisition cost for the first 18,000 of these vehicles is scheduled to be \$8,160 per truck, according to data provided me by Army officials.

The Army made this award despite the fact that for more than 6 months, the Army had held in abeyance an unsolicited firm fixed price proposal from the Kaiser Jeep Corp. in the amount of \$71 million to produce a like quantity of improved M-715 trucks. The improved M-715 is a modification of a similar and apparently satisfactory M-715 vehicle already in the military system.

Congress has repeatedly cautioned the Army about introducing a new truck into the logistic system. The full House Committee on Appropriations, as far back as June 1963, questioned the Army's continued sole-source procurement of the M-34 ¾-ton ton truck and emphasized the need to develop the follow-on XM-561 vehicle with competitive procurement at the earliest practical date. (The M-561, known as the Gama Goat, is a high mobility truck now being procured at a cost of about \$11,000 each.) The Appropriations Committee, however, approved a limited procurement for ¾-ton trucks for fiscal year 1964 anticipating that these vehicles as well as existing inventory would be adequate to meet Army requirements until the successor M-561 was ready for procurement.

The Appropriations Committee further noted that the Army was looking into the possibility of utilizing other commercially available trucks that might meet the Army's requirements. The committee admonished the Army that the advantages of competitive procurement must be weighed against the higher costs associated with introducing a new vehicle into the logistics system.

Thus, the Army at present is faced with logistically supporting two trucks of the same class—the M-37 and the M-715—and will soon have a third truck, the high mobility M-561 truck in its system. Procurement of the XM-705 will add yet a fourth 1¾-ton truck to the system.

The Army Materiel Command itself, in its comparison of the improved M-715 and the XM-705, warned of the additional expense and unnecessary logistical complications that would result from adding this fourth 1¾-ton truck—the XM-705—to the fleet. In its report, the Army Materiel Command emphasized the logistical advantages of retaining the M-715 and rejecting the XM-705:

Selection of the improved M-715 would have the following effects in logistic factors:

- a. Reduces the types of major items in the fleet . . .
- b. Reduces the number of new component line items introduced into the system . . .
- c. Avoids increased supply and distribution costs . . . The XM-705 would require complete logistics introduction.

Mr. Chairman, a comparison of initial investment costs for the XM-705 and for the M-715 is plain evidence of the Army's misjudgment in this matter.

For an initial buy of 18,000 vehicles, the Army estimates that the initial investment cost will be \$8,160 for each XM-705. This figure compares with \$5,120 for each XM-715. The additional cost, then, is over \$54 million for the XM-705. Moreover, based on a projected fleet of 50,000 vehicles, the Army Materiel Command estimated that the total additional cost to the taxpayer would be approximately \$150 million.

Mr. Chairman, I have sought time and time again to obtain from the Army satisfactory explanations to questions I have raised about the basis for its determination to procure the XM-705.

Following my meeting with the Secretary of the Army in February, I exchanged correspondence with him. I subsequently met at some length with a team of Army officials dispatched by the Secretary of the Army which included the Army's Director of Materiel Acquisition, Maj. Gen. Roland B. Anderson. I have studied materials thereafter prepared for me by General Anderson. I have reviewed with care the answers concerning the XM-705 submitted by the Army to this subcommittee just 4 days ago.

But, Mr. Chairman, the deeper I look into this matter, the more convinced I have become that the Army's justification of the XM-705 program is not only inadequate, but also misleading.

Essentially, Army officials have attempted to justify their decision to procure the XM-705 by stating that it would result, in contrast to continuing procurement of the M-715 or an improved version, in both substantial improvements in military effectiveness and lower life-cycle costs.

Mr. Chairman, the Army has failed to support either of those contentions. Let me explain.

1. Life cycle costs

Life cycle costs lie at the heart of the issue and draw attention to the questionable accuracy of the Army's method of comparing the real-life M-715 and the paperwork XM-705.

I was informed by the Army that its decision to proceed with the procurement of the XM-705 was based on the Army's calculated higher life cycle cost of the improved M-715. In fact, however, as I have indicated, the internal Army study, to which I have already referred, stated in July 1968 that the additional life cycle cost of adding XM-705's to the fleet would be approximately \$150 million over the alternative of procuring the improved M-715.

Yet, Maj. Gen. Roland B. Anderson, who headed up the delegation sent to my office by Secretary Resor, represented this figure to

be only \$75 million. Moreover, he dismissed the savings which would result from purchasing improved M-715's as unsubstantiated in the eyes of the Army. According to General Anderson, in a document he submitted to me on April 18, 1969:

A cost comparison study made by the Army Materiel Command Comptroller and Director of Programs did indicate a life-cycle cost advantage of \$75 million for the improved M-715 on the basis of a 50,000 vehicle fleet. However, this study was made on the basis of the assumptions that Kaiser Jeep's unsupported claims as to reliability and durability could be attained. For that reason it has never been accepted by the Army. This study was accomplished in July 1968.

General Anderson's letter of April 18 takes the unequivocal position that the Army's life cycle cost computations showed a lower cost for the XM-705. But the General's assertion is in direct conflict with the earlier determination of the Comptroller and Director of programs, Army Materiel Command, that the life cycle cost for the improved M-715 would be substantially lower than that for the XM-705.

2. Contrived cost comparisons

Notwithstanding this Army Materiel Command report, the Army subsequently contrived—and I use that word advisedly—an unrealistic life cycle cost for the improved M-715 in order to justify procurement of the XM-705.

Let me explain.

The Army has relied heavily on the alleged high life cycle cost of the improved M-715 as compared to the life cycle cost for the XM-705. Simply stated, the life cycle cost is the initial acquisition cost of a vehicle plus the maintenance and repair cost for that vehicle over its expected lifetime.

In calculating a life cycle cost, the so-called "maintenance index" is vitally important. This is because a maintenance index indicates just how much time a vehicle will be unable to operate because of the need for repairs and other maintenance.

To illustrate how crucially important the maintenance index is, the Army stated that repair parts and maintenance for each improved M-715 would amount to approximately \$13,500—over \$1,000 each year for each year of the M-715's 12-year life span. At the same time, the Army stated that the repair parts and maintenance for each XM-705, which exists on paper only, would be slightly over \$6,000 for the lifetime of each vehicle—or approximately \$500 each year.

As a result, the difference in cost as given between maintaining a fleet of XM-705's and maintaining a fleet of improved M-715's, based on Army assumptions is enormous. In fact, that difference, based on a projected fleet of 50,000 vehicles over a 12-year life expectancy for each vehicle, amounts to several hundred million dollars.

And yet, when I sought to learn the basis on which the Army assigned these very different, yet crucially important maintenance indexes to both of these vehicles, I was astonished, as I am sure that the members of this subcommittee will be, by the lack of integrity of the criteria the Army chose to use.

What I learned was this:

The Army had assigned a maintenance index for the XM-705 based on conjecture, assumption, and insufficient data. In fact, no XM-705 has ever been built. The index assigned for the vehicle is based entirely on values calculated by the contractor which the Army, after

checking, accepted. And yet the vehicle exists only on paper, and I will indicate later in my statement how dangerous this practice of failing to rely on prototype development has been in the past.

Moreover, the very high maintenance index assigned for the improved M-715 is no more supportable than the very low index assigned to the XM-705. The Army has failed, despite my repeated requests to Army officials, to provide me with any explanation of how the figure for the improved M-715 was derived—an index almost three times as high as that for the XM-705. And yet there are at least three compelling reasons which suggest that the maintenance index assigned the M-715 is arbitrary in the extreme.

1. Apparently, the Army used only five of the first M-715's off the production line, tested them, but ignored considerable test data on later M-715's in calculating the maintenance index.

2. At present, approximately 25,000 M-715's are operating in the field, many of these vehicles for close to 2 years. (About 5,000 M-715's are in reserve storage.) Yet neither officials of the Kaiser Jeep Corp. nor I have succeeded in getting any information from the Army which suggests that the existing M-715's have not been performing effectively and economically. In fact, one Army Materiel Command memorandum states specifically that "there are no reports pointing to other than normal maintenance and MWO (modification work order) requirements." Moreover, officials of the Kaiser Jeep Corporation have visited many field commands where the M-715 is deployed, both in the United States and abroad, and reported to me that the M-715 apparently has received wide acceptance among field commanders.

3. Moreover, two reputable management consulting firms, Harbridge House and Communications and Systems, Inc., conducted studies, commissioned by the Kaiser Jeep Corp., based on test data made available by the Army. The conclusion of both of these studies is that the maintenance index assigned to the improved M-715 by the Army is much greater—and hence of course much more costly—than is justifiable based on the data used by the Army.

In sum, the Army has chosen to rely heavily on the alleged merits of the paper XM-705. Yet the truth is best stated in the Army Materiel Command's study of the XM-705 and the M-715: "No conclusive difference in estimated reliability can be stated because of the uncertainties involved in both vehicles."

Mr. Chairman, I am convinced that in their assignment to the improved M-715 of a maintenance index almost three times greater than that assumed for the XM-705, the Army has taken elaborate pains to construct a self-serving case.

COMBAT EFFECTIVENESS: UNSUPPORTED AND UNTESTED COMPARISON OF BENEFITS OF XM-705 AND M-715 PROGRAMS

Mr. Chairman, as members of this subcommittee will all be aware, Army regulations are clear that the bulk of research, development, testing and evaluation funds should be spent on items providing significant advances in combat effectiveness with emphasis on mobility, firepower, and communications. No substantial sums of money are to be spent for small, incremental increases in combat effectiveness with emphasis on mobility, firepower, and communications. No sub-

stantial sums of money are to be spent for small, incremental increases in combat effectiveness. Furthermore, regulations specify that the cost of new items must be carefully weighed against expected improvement in operational capability. According to Army doctrine, "improvements of modernization action are avoided," and "unnecessary technical features, over-refinement, and excessive durability must be eliminated."

Army Regulation 11-25, entitled "Army Programs, the Management Process for the Development of Army Systems," dated April 10, 1968, is clear and succinct: "Priority is placed on new capabilities which provide significant improvement in combat effectiveness."

Yet this explicit mandate has been ignored in the present case.

The General Accounting Office is conducting an extensive study of the Army's analysis and cost comparison of the XM-705 and the improved M-715 programs. As we are all aware, Mr. Chairman, the General Accounting Office was placed in the legislative branch of the Government to provide the committees and Members of Congress with independent reports on the management operations of the executive branch. The unremitting duty of the Comptroller General and the General Accounting Office staff is to serve Congress by searching continually for means of achieving greater effectiveness, economy, and efficiency throughout the Government.

Although the General Accounting Office has not yet completed its review I have been greatly impressed both by their findings to date and by the thoroughness of their investigation.

Mr. Chairman, let me here cite in detail some of the unequivocal, unambiguous findings of the General Accounting Office:

Based on our review of the XM-705 development and the conclusions of the cost-effectiveness study made by AMC (Army Materiel Command) in July 1968, it appears that the XM-705 does not represent a real stride forward in terms of combat effectiveness. Rather, it appears to offer only a relatively small increase in terms of combat effectiveness over the XM-715 1½-ton truck already in the Army system and no clearly significant superiority over the improved XM-715 proposed by KJC (Kaiser Jeep Corp.). Accordingly, the XM-705 program appears to represent an excessive expenditure for marginal improvements in combat effectiveness over the improved XM-715.

As far as we know, the Army does not accept the July 1968 AMC cost-effectiveness comparison because it was based on unsupported assumptions. It does not seem reasonable to make such a study for the apparent purpose of providing a better basis for decisionmaking, when the input is based on unsupported assumptions that cannot be accepted. Further, the definitive data considered necessary to validate the assumptions was not requested by the Army for about 6 months. It appears that the Army should have taken action to obtain such data much sooner than it did. Further, we believe the award of the TPP (total package procurement) contract to General Motors should not have been made prior to receipt and evaluation of the requested definitive data. If the evaluation was favorable to KJC, then it seems the course of less risk to the Government would have been to proceed with development and test of KJC's improved XM-715 since KJC also guaranteed performance and offered a significant saving in cost and time: While there is the possibility that the improved XM-715 would fail during tests to meet the requirements although guaranteed, the same possibility also exists in the more costly current XM-705 program.

Mr. Chairman, having cited the finding of the General Accounting Office, I want, in order to complete the evidence for the members of the subcommittee, to cite several additional points contained in the Army Materiel Command's comparison study, to which I have earlier referred.

They are essential points which I have not yet made. The Army Materiel Command report said:

1. With the improvements proposed, an adequate design guarantee and warranty, and contractor liability established by demonstration to Government test specifications, there are no known performance or effectiveness preclusions to selection of the M-715. Areas in which the QMR (qualitative materiel requirements) are not met; are not considered significant. Cost differentials are significant, particularly in the acquisition category (R. & D. and investment) and are considered to be conservative. The current M-715 is programed in the Army inventory through fiscal year 1978 and further logistics simplification and cost avoidance are factors for M-715 selection. The Government's legal and moral obligations in abandonment of the XM-705 are protectable and/or defensible. Government rights-in-data are roughly comparable between the two suppliers. Significant savings are also evident to the M-715 in the ambulance version and high density kits. Other savings, on cost-effectiveness considerations, can be made from the improvements specified in both proposals.

2. Both the XM-70 and the improved versions of the M-715 are "paper vehicles" in the sense that neither exists or has been demonstrated. The current version of the M-715 does exist * * * and both costs and performance values have some historical documentation. The values (performance and maintenance estimates) of the XM-705 have been derived from quotations and estimates made by the contractor and modified where considered appropriate. These, therefore, are considered to have a greater uncertainty (plus or minus), than for the current M-715 data.

In view of the unrelenting investigative work and the findings to date of the General Accounting Office in the present XM-705/M-715 controversy, and in further view of the devastating Army Materiel Command's comparison study, I must conclude that the method used by the Army to procure the XM-705 is unjustifiable and irresponsible.

Based on a careful examination of the XM-705 program, then, I fail to see any justification either for the increased costs or the complication of logistics caused by several equivalent vehicles in the military system. It is my understanding that the M-715, with minimum improvements, can fulfill the system's description of the XM-705. Accordingly, there is no reason for the Department of Defense to incur the additional cost of developing a new vehicle where the capabilities required can be provided through minor modification of the existing M-715. In summary, it appears that, at best, the XM-705 program offers a marginal improvement in overall vehicle performance at a disproportionate increase in cost.

At a time when the Federal Government is trying very hard to limit expenditures and when Defense Department appropriations are approaching \$80 billion annually, I respectfully urge the members of this distinguished subcommittee carefully to review the entire XM-705 contract and the manner in which it was awarded.

Naturally, Mr. Chairman, I would hope that your distinguished subcommittee would also insist, in view of the kind of evidence I have here presented, that the Army give satisfactory responses to the questions I have raised, which the Army has up to now failed completely to do.

Mr. MAHON. Mr. Brademas, we are pleased to have you before the committee. I think it is the duty of all of us who are Members of Congress to be as alert as possible in order that we may serve the public interest to the best of our ability.

It is proper that we should listen to the voices of the people in our districts.

In addition, I assume, to your interest in the general situation and in the interest of the taxpayer and efficiency in the Army, you are also interested in your own district—and you should be.

I am the same way with matters involving my own district.

As I understand it, there is a company in your district called—

Mr. BRADEMAS. Kaiser Jeep, Mr. Chairman.

Mr. MAHON. It does a lot of Army truck business?

Mr. BRADEMAS. Yes, sir.

Mr. MAHON. Place in the record, Mr. Clerk, at this point, the extent of the Army business which Kaiser Jeep has.

(The information follows:)

ARMY PURCHASES FROM KAISER-JEEP CORP.

[Based upon currently available information, the Army, during the period fiscal year 1961 through fiscal year 1969, made the following purchases from the Kaiser-Jeep Corp.]

(Dollar amounts in millions)

Fiscal year	South Bend, Ind.		Toledo, Ohio		Total
	Items	Amount	Items	Amount	
1961.....	None.....	0	Truck, ¼-ton, M38A1, and spare parts.....	\$4.6	\$4.6
1962.....	do.....	0	Truck, ¾-ton, M151, and spare parts.....	67.3	67.3
1963.....	do.....	0	Same.....	15.1	15.1
1964.....	Truck, 2¼-ton, M44; truck, 5-ton, M39, and spare parts.....	\$79.6	Same.....	8.0	87.6
1965.....	do.....	187.1	Truck, ¼-ton, M606, and spare parts.....	9.2	196.3
1966.....	do.....	284.1	Truck, ¼-ton, M606; truck, 1¼-ton, M715, and spare parts.....	74.0	358.1
1967.....	do.....	94.9	do.....	49.8	144.7
1968.....	do.....	252.9	do.....	41.3	294.2
1969.....	Same plus truck, 5-ton, SM809..	110.9	Spare parts.....	2.8	113.7
Total.....		1,009.5		272.1	1,281.6

The projected fiscal year 1970 Army purchases from the Kaiser-Jeep Corp. are expected to amount to approximately \$60 million to cover existing multiyear procurement. Additional awards would be dependent upon the results of competitive bidding for other Army purchases.

Mr. MAHON. Now, Kaiser Jeep has other plants, I assume, not in your district?

Mr. BRADEMAS. Oh, yes, sir.

ARMY INVESTMENT IN XM-705 TRUCK

Mr. MAHON. Now, General Motors is the company that is concerned here with the XM-705 truck. Last year we were requested to provide some funds for the XM-705 trucks. In fiscal year 1966, \$1,094,000 was provided. In 1967, \$2,147,000 was provided and in 1968, \$683,000 was provided. This makes a total of \$3,951,000 that has been provided thus far for research, development, test, and evaluation of this proposed truck. These facts, of course, are before you. I am just putting this into the record.

Now, for fiscal year 1970, which will begin July 1, 1969, the Army is requesting \$4.5 million to be used for the procurement—now we are getting into procurement and out of research and development—the proposed procurement of 400 or 500 of these trucks.

This would be the first purchase of a 4-year buy and this would be, as you point out, a very large program in toto.

Your point is that you feel that Congress should deny these funds—you, taking the position that the results of the research and development and so forth would indicate that the truck that is being suggested, the XM-705, is really by no means a quantum leap over other vehicles and you do not think as a practical, commonsense matter we ought to launch this program. Is that about it?

XM-705 MAY REPRESENT ONLY MARGINAL IMPROVEMENT

Mr. BRADEMAS. If I may comment on your observation, Mr. Chairman, in the first place my quarrel, I want to make very clear, is not with General Motors, but it is with the Army. As I have said in my statement, and as I can prove, I believe, the Army has contrived to place the contract with this firm and that in spite of the fact that as much as \$7 million for R. & D. and procurement may already have been invested, that unless the decision is reversed, the cost to the taxpayer will be not \$7 million, but \$150 million, an estimate which was developed not by me, Mr. Chairman, but by the Army Materiel Command, and the evidence which I am citing to avert the loss of \$150 million comes from the General Accounting Office report as well as from the Army Materiel Command.

As you will see, sir, on page 9 of my statement, I quote the finding of the GAO, which says that, based on their review of the XM-705 development and the conclusions of the cost-effectiveness study made by the Army Materiel Command in July 1968—those are two studies—it appears the XM-705 does not represent a real stride forward in terms of combat effectiveness; rather, only indicates a small increase in terms of combat effectiveness for the XM-715 and no clear superiority over the improved one.

Accordingly, the XM-705 program appears to represent an excessive expenditure for marginal improvements in combat effectiveness over the improved XM-715. You have very well summed up, Mr. Chairman, the point that the Army proposes to spend a great deal of money for a marginal improvement in the vehicle proposed.

Mr. MAHON. There are times when a marginal improvement can, of course, be justified, especially in fields where human life is very decidedly involved. We take, I think often, and I think you would take the position that in cases involving weaponry as such, anything that is a marginal improvement that will save a considerable number of lives and would be more effective may be worth while, but this is not precisely that kind of thing.

Mr. BRADEMAS. Mr. Chairman, you have hit the nail right on the head when you make that point. We are talking not about a weapons system here, but about a truck, and I might also point out that the comparison—their justification for the XM-705 has been made completely on paper. It would seem to me that, if the GM people and the Kaiser Jeep people were doing something to go ahead, going ahead and producing some test vehicles and they could be tested in some prototype way, then if one or the other proved significantly better, members of the House and of Congress generally could feel more confidence in supporting this kind of an appropriation. But I think,

Mr. Chairman, you hit the nail right on the head when you pointed out this is a truck and not, as it were, a life or death kind of weapon in everyday battle use.

TESTIMONY TO BE CONSIDERED DURING HEARINGS

Mr. MAHON. We have not had our hearings this year on this item about which you speak. We will have your statement before us when the Army is before us and we will ask our people who work with the committee to be as helpful as possible in connection with it.

We will give the whole matter thorough consideration. We appreciate your appearance here. Of course, you will be at liberty to discuss this matter with us from time to time as the picture develops.

Mr. BRADEMAS. I would like to say just one other word, if I may, Mr. Chairman.

The chairman very correctly pointed out that the Kaiser Jeep firm has a plant in my district and it is for that reason only that was able to have this matter brought to my attention and was able to go ahead and get the General Accounting Office into the picture. But I would be just as profoundly concerned about the waste of moneys of this magnitude if it were a plant in somebody else's district and I ought, in all candor, to say, Mr. Chairman, that before I determined to come before your subcommittee and, as I said, and as the chairman knows, this is the first time since I have been in Congress in 10 years that I have ever asked to come, so I think from my point of view it is an unusual thing for me to appear before this distinguished committee.

Before I was willing to move ahead in this matter, Mr. Chairman, and to get the Comptroller General in the act—which I have never done in 10 years in Congress—I wanted to satisfy myself, sir, that the evidence was pretty solid, that the taxpayers' money was going to be outrageously wasted.

If you will examine my statement carefully, you will see that I make a very serious charge. I charge that the Army has contrived to place this with a particular firm. That is a serious charge which I make before your committee and I make in the public press, so I would hope that the charge which I bring—and I am confident it will, Mr. Chairman—will be given the attention that I know your great subcommittee will give to it. I am very grateful for the opportunity to appear before you.

Mr. MAHON. Thank you very much.

MONDAY, JUNE 9, 1969.

RECOMMENDATIONS OF THE NATIONAL BOARD FOR THE PROMOTION OF
RIFLE PRACTICE

WITNESS

FRANKLIN L. ORTH, EXECUTIVE VICE PRESIDENT, NATIONAL
RIFLE ASSOCIATION OF AMERICA

Mr. MAHON. At this time we will hear from Franklin L. Orth of the National Rifle Association. Mr. Orth, you have been before this committee many times. We are always pleased to have you, and any

other person interested in the welfare of the country or in the issues of the day involving Federal funds, appear before the committee.

Mr. ORTH. Mr. Chairman and members of the committee. Thank you for granting me the opportunity to come before you to speak in support of that valuable element of our defense effort, the national board for the promotion of rifle practice. The courtesy extended by this subcommittee on all previous occasions is most deeply appreciated.

It is with mixed emotions of grave concern and frustration that I speak today. In my personal knowledge and acquaintance, there are in this Nation thousands upon thousands of interested and concerned private citizens who place a high enough premium on their freedom to dedicate freely and without reservation much of their valuable time and energy toward the preservation of our way of life. These are men more often than not who have on previous occasions placed their lives on the line while wearing the uniform of one of our country's armed services. Convinced of the value of marksmanship training prior to military service, these loyal patriotic Americans, upon their return to civilian life, have determined to participate as fully as possible, within the limits of their time and talent, toward insuring that there would be available (1) a large group of expert instructors to train recruits in the fundamentals of marksmanship in the event of war, and (2) a hard core of our Nation's youth who had received instruction in the use and handling of the service rifle prior to entry into military service. It goes without saying that the national board program is one of the few defense programs in which a civilian may actively participate. Today's professional and technical emphasis in the armed services preclude to a large extent such activity in other areas.

The truly unique aspect of the activities carried on by the national board is that it stimulates and encourages civilian participation to the extent that a genuine pump-priming relationship exists. The amount of money and time expended by the Government is small by any method of measurement or comparison. The cost of the program must be weighed against the urgent importance of training thousands of civilians in the use of the service rifle prior to entrance in the military service. The program is largely pump-priming in that it furnishes only materiel (surplus rifles and ammunition) to rifle clubs, who accomplish the training programs with their own civilian instructors on their own range at no cost to the Government.

Unquestionably, our society, as it must in order to survive, is in a constant process of social development and growth. Constructive revision and changes in emphases are essential to the advancement and perpetuation of our civilization. However, of late, there has been a threatening, ominous, and sometimes violent attack on what has come to be derogatorily termed "the Establishment." Customs, mores, practices, procedures, and institutions of sometimes long-standing and proven worth have been attacked and severely criticized, often solely to further strictly personal and selfish goals.

In this vein, because of several tragic events of national impact, much attention was directed to the ownership of firearms. Emotions ran high and the Congress reacted with enactment of Federal legislation of far-reaching effect. Particularly discouraging during the debate, however, was the unfounded, misleading, and politically motivated attack on the civilian marksmanship program. An apparent pur-

pose of the attack was to discredit both this beneficial defense program and those who argued against certain of the proposed controls on firearms.

With full awareness that it is the responsibility of those in positions of authority to exercise such authority in the interest of the public welfare, the reasoning behind recent decisions relative to the continuation of the national board program seem clearly in error. Specifically, I refer to the fact that no funds have been requested for fiscal year 1970 for continuing the operation of the national board for the promotion of rifle practice.

You are, no doubt, well aware that since 1903 the program has received the support of the vast majority of the Congress, including the House and Senate Appropriations Committees. Presidents Ulysses S. Grant, Theodore Roosevelt, William H. Taft, Harry S. Truman, Dwight D. Eisenhower, John F. Kennedy, and others have been enthusiastic supporters of the civilian marksmanship program. Generals Eisenhower, Lemnitzer, Holcomb, Smith, Edson, Johnson, Greene, and others have expressed their full support of the program.

Particularly appropriate are the following comments by General Harold K. Johnson, former Chief of Staff, U.S. Army, in reference to the conflict in Vietnam: "For the people involved in it, it is a very personal type of conflict—fought generally at rather close and intimate range where skill in the use of small arms is often a decisive factor. It is, in short, a rifleman's war.

"There can be no question that a man who has been a shooter before he enters the Army is probably going to make a better military rifleman than his less experienced associates."

It is significant that the Soviet Union, Communist China, and all eastern bloc countries have moved forward to intensify military training for their civilians. They prepare their youth for military service by training them in rifle shooting, physical fitness, propaganda and political work; and they stress the need for military preparedness. In short, these nations recognize and accept the importance of civilian training. Their view is largely based on historically repeated lessons demonstrating the importance of the individual rifleman in any war.

The present engagement in Vietnam, our past involvement in Korea, and well-founded predictions by military strategists and other experts indicate that the stalemate of threatened nuclear powers will continue to result in so-called brush wars rather than a confrontation of the international nuclear powers. Such wars, as has been repeatedly demonstrated, are basically wars in which the rifleman plays the key role. The primary aim of any marksmanship training sponsored for national defense purposes is to train potential combatants so that they may function effectively in the national interest in case of war. Until the likelihood of armed conflict is eliminated, this requirement will persist.

A competent unbiased study of the National Board for the promotion of Rifle Practice was conducted by the Arthur D. Little Co. for the Department of the Army in 1965. One of the major conclusions of the study was that shooting experience, "and particularly marksmanship instruction, with military-type small arms prior to entry into military service contributes significantly to the training of the individual soldier." Among the major recommendations of the study was

that the NBPRP be continued and certain aspects of the program be broadened to reach more young men reaching the age for military service.

In addition to attaining higher marksmanship qualification scores, the study found that Army trainees who were gun club members prior to entering the service are more apt to enlist, more apt to prefer a combat unit, more apt to choose outfits where they are more likely to use their rifle, liked firearms and shooting more, had more shooting experience, received more marksmanship instruction, are more confident in their ability to use their rifle effectively in combat, competed in more and higher level shooting matches, and are more likely to want to become a marksmanship instructor. In light of present ill advised demands for removal of ROTC courses and other defense or military oriented subjects and projects from college curriculums the problem of producing trained leaders becomes serious indeed. The findings of the Little study should more than justify an adequate expenditure for a marksmanship training program such as that sponsored by the National Board for the Promotion of Rifle Practice. Where else will be found sufficient trained leaders and other experienced instructor personnel for an all-volunteer Army which is now under consideration?

Recognizing the value of national prestige to be gained through international shooting competition, this subcommittee has supported requests for funds for this purpose and for training and sending military shooters to the Olympic and Pan American Games and World Shooting Championships. This is now also eliminated from the Army budget.

I earnestly hope that this subcommittee will continue to recognize the importance of a citizenry trained in the use of military service rifle and reestablish an appropriation in the Department of Defense budget request for fiscal year 1970 adequate to continue operation of the National Board for the Promotion of Rifle Practice.

Briefly, the NRA supports the idea of having a national board for the promotion of rifle practice. The Congress willed it in 1903, and this program has continued ever since, to train young men of military age in marksmanship prior to military service. We think the fact that we have a Vietnam war is no real reason for discontinuing the program. It doesn't make sense to us. We simply would like to have the record show that we believe the general officers who organized the National Rifle Association after the Civil War knew what they were talking about and it is necessary to train young men in the use of the service arm. It is being done on 12,000 NRA ranges at no cost to the Government; the NRA furnishes the instructors and ranges upon which the training is given. This program is simply a pump-priming program in which the materiel; namely, the rifles and the surplus ammunition, is furnished by the Government. We would urge this committee to support this program with funds.

Mr. MAHON. Thank you very much, Mr. Orth. Your views will have our attention.

PRIORITIES ON DEFENSE AND CIVIL DOMESTIC PROGRAMS

WITNESSES

JACKIE ROBINSON, MEMBER, NORTH STAMFORD UNITED CHURCH OF CHRIST; FORMER PRESIDENT, UNITED CHURCHMEN; VICE PRESIDENT, NATIONAL ASSOCIATION FOR THE ADVANCEMENT OF COLORED PEOPLE; CHAIRMAN, BOARD, FREEDOM NATIONAL BANK; FORMER MAJOR LEAGUE BASEBALL PLAYER AND MEMBER, BASEBALL HALL OF FAME

REV. HARRY C. APPLEWHITE, DIRECTOR OF PEACE ACTION, COUNCIL FOR CHRISTIAN SOCIAL ACTION

Mr. MAHON. We have a letter here addressed to a member of the staff, Mr. R. L. Michaels, from Mr. Harry C. Applewhite of the Council for Christian Social Action under date of June 4. This council, as I understand it, represents the United Church of Christ.

Now, Mr. Robinson, we are pleased to have you before us. It is noted that you are vice president of Seahost. What does that mean?

Mr. ROBINSON. It is a restaurant-franchising company, sir, and we are vice president of the company.

Mr. MAHON. Vice president of the company known as Seahost?

Mr. ROBINSON. Yes.

Mr. MAHON. Does that have anything to do with your testimony?

Mr. ROBINSON. Absolutely nothing; no, sir.

Mr. APPLEWHITE. My name is Harry Applewhite. I am the director of peace action with the Council for Christian Social Action of the United Church of Christ.

Mr. MAHON. Please tell us about the church which you represent.

Mr. APPLEWHITE. It is the United Church of Christ.

Mr. MAHON. Tell us about it.

Mr. APPLEWHITE. The United Church of Christ is the product of a merger between the Congregational Christian Churches and the Evangelical and Reformed Church and it consists of about 2 million members.

Mr. MAHON. Where are the members located generally?

Mr. APPLEWHITE. There is a heavy strain in New England because of the Congregationalists. The Evangelical and Reformed Church had a large group in the Pennsylvania area and also in the Mississippi Valley area, Illinois, and some places in the South, coming down the river there.

Mr. MAHON. That is fully adequate. You may proceed.

Mr. ROBINSON. I think you have gotten basically the first part of my testimony. We were going to explain a little bit about the United Church of Christ in the opening of our testimony.

My name is Jackie Robinson. I am vice president of the National Association for the Advancement of Colored People, chairman of the board of the Freedom National Bank, a former major league baseball player and a member of the Baseball Hall of Fame. I am also a member of the North Stamford Church and former president of the United Churchmen. This association gives me the opportunity to speak today on behalf of the Council for Christian Social Action of the United Church of Christ. The United Church of Christ was formed by a

merger of the Evangelical and Reformed Church and the Congregational Christian Churches. The Council for Christian Social Action is charged to "formulate and promote a program of social education and action." While I do not necessarily speak for each of the 2 million members of the United Church of Christ, I do speak for the Council for Christian Social Action within the framework of carefully formulated policies.

The security of the United States is threatened by both external and internal forces. A secure nation must not lose sight of either threat. It is our concern that an over preoccupation with a possible future external threat is blinding us to an immediate and expanding domestic crisis. This results in a distortion of our priorities, a distortion of our values, an emasculation of justice, and a decrease in our security.

1. The possible future external threat.—There is no immediate threat to our strategic deterrent. Secretary Laird and his colleagues are worried that there may be a possible threat to a portion of our deterrent, the land-based ICBM's, in the mid-1970's. Therefore, he has recommended that we launch an ABM program to protect some portion of that land-based deterrent which may be threatened. Even if Secretary Laird's reading of Soviet intentions is accurate, and there are numerous experts including many within the intelligence community who doubt that this is the case, the possibility of the Soviets launching a coordinated attack which would simultaneously eliminate our 1,000 land-based ICBM's, our 41 submarines which Rear Adm. Levering Smith, Director of Navy Strategic Systems Projects, recently said—*Washington Post*, May 12, 1969—are not under threat in the foreseeable future, our bombers, and our 7,000 tactical nuclear weapons in Europe, some of which are capable of reaching the Soviet Union, seems highly remote. The possibility that the Chinese would launch an attack upon the United States in the face of sure and total annihilation borders on the fantastic.

The risks of deploying Safeguard are too great. They include:

The risk of an escalation of the arms race by causing a Soviet response.—Hardliners in the Soviet Union and in the United States think alike.

The risk of intensifying overkill.—Since a Soviet response would likely be to step up its offensive capability, thus pointing more missiles at us.

The risk of spoiling the possibility of arms limitation agreements.

The risk of distorting our relationships with China.—Now, at the close of an Asian war, is the time for a reappraisal of our relationships with China, not the building of an anti-Chinese missile.

The risk of obsolescence.—Dr. Jerome Weisner has said that the ABM is technologically obsolete in its conception. Since the mid-1940's, we have spent \$23 billion on missiles which were never deployed; Nike Zeus, forerunner of Safeguard, would have been obsolete by the time it was deployed.

The risk of spiraling costs.—The \$6-7 billion which Safeguard was announced to cost does not include research and development, the nuclear warheads, operation and maintenance of the system, all of which bring it up to \$11 billion. The cost does not include inflation or possible upgrading of functions. Most complicated weapons systems cost

at least 200 and often 300 percent more than the announced cost, which could well mean that Safeguard might cost \$20-30 billion.

The risk of distortion of our priorities.

The risk of increased militarization of our society.—The sheer preponderance of resources made available to the military-industrial complex encourages the definition of problems in military terms and their solutions as military, when more often they are political.

The best way to achieve security from this external threat is to achieve an arms control agreement with the Soviet Union, limiting both offensive and defensive weapons systems. Such an agreement is in both their and our self interest. Satellite inspection now makes possible accurate inspection as to whether or not agreements are being kept. What's missing is trust.

Building an expensive weapons system of dubious value is not the way to build trust. The continued testing of MIRV is not the way to build trust. The Soviets have indicated a willingness to enter into meaningful negotiations for nearly a year. We keep delaying. The reports that we will postpone these talks until after September, which means after the next round of MIRV tests, are disturbing. We are on a technological plateau. Once MIRV tests are completed and/or Safeguard is deployed, it will be vastly more difficult to reach agreements since satellite inspection will not be possible on the MIRV. The responsibility for the delay is not all on the other side.

The Council for Christian Social Action noted in its statement of 1967 that the decision to deploy an ABM is a "decision with momentous consequences for the arms race, the pursuit of peace, and the priorities of our Nation in every realm of domestic and foreign policy." We believe that time has borne out that statement and that it is even more true today than in 1967 that "the risks of escalation are immeasurably more difficult to justify in this instance than the risks of restraint."

We urge the House Appropriations Committee to strike funds for the deployment of the ABM and to call for a halt to additional testing of MIRV until after we have explored the possibility of achieving an arms limitation agreement with the Soviet Union.

2. The present and expanding domestic threat.—Our domestic crisis is growing worse. Our cities are burning, not from enemy missiles, but from anger at oppression. The polarization in our society is wider this year than last year. Ten million Americans, many of them children, are being permanently damaged by hunger and malnutrition. Twenty-two million Americans remain below the minimum poverty line. Twenty million Americans are ill-housed. Elderly couples now eke out a living on \$122 a month.

Our over preoccupation with a possible future external threat, on which we are preparing to spend billions of dollars, has blinded us to human misery at home. The same voices which call for expanded weapons systems of dubious value are the voices which tell us there is no money to help our children and our youth.

Gentlemen, I don't want to sound like an alarmist, but I am greatly concerned that the dangers from within are much greater than the dangers from the outside, for I warn you that out there on ghetto streets of our Nation are young black kids not propagandized by any group, not subsidized by any conspiracy, just black kids whose frustrations are so great, whose trust of what America stands for is nil—

black kids who aren't afraid to die, for I heard them say they'd rather die in the streets of America than in Vietnam. I have heard them say, "I'm not afraid to die for I am barely living now."

They say they are not willing to wait any longer for the hearts of man to change.

Gentlemen, while I deplore violence in any form, and while I do not endorse rioting and looting, I don't intend to bury my head in the sand about the pure, sheer sincerity of most black kids and their conviction that they are right in their cause, especially when they talk about what history has proven, that progress thrives on violence.

I respect that sincerity just as I respect the sincerity of those young black athletes who said in one breath, "I would give my right arm for an Olympic medal," but who say on the other hand that they can find no honor in competition so long as this Nation is willing to do business as usual with South Africa.

Have I failed to talk positively? Have I emphasized almost exclusively the negatives which bespeak and account for the lethargy, the hopelessness, the despair, and the lawlessness which are breeding in the ghetto? Well, let me say that no one has to tell grown men what to do to promote decency. If, within yourself, you cannot comprehend the golden rule or understand the logic that if God is the father of all of us, all men were intended to be brothers; if you don't know why Martin Luther King died; if you don't have the capacity to examine yourself and find you are wanting in the quality of your conscience of the discharge of your duties as a public servant, then there is nothing I can tell you. I can only say that if you want to accentuate the positive, it follows that you must eliminate the negative. This is the most powerful country in the world, and you are one of its most powerful groups. You can't change the country overnight. But you can help in such a meaningful way.

Let's have the courage to reach out for what is right. Let's extend a friendly hand to those young black Americans who have little if any faith in those who shape the destiny of our country. Let's stop doing things out of fear. Let's do them because they are right.

We may have, in my opinion, little to fear from the Soviet Union who fears Red China more than they do us. Let's extend a helping hand to the poor, the disadvantaged, and let's stand up against those in Congress who make statements that say, "If we give food stamps to the poor, they will use the cash we give to buy whisky and drugs." Of course, some will. But just as we don't condemn all Congressmen when one errs, we should not lump all the poor into one category. What Mr. Lincoln said 100 years ago, that a house divided into itself cannot stand, is still true today.

America, in my view, is a divided nation in danger of falling because of internal conflict.

A final suggestion.—I would like to make a final suggestion to the committee. We have got to encourage industries to convert to non-defense projects. We have got to help the families and communities face the problem that this means. People need jobs, and they'd rather do something besides make missiles and bullets. I would like to suggest that the committee give consideration to the national economic conversion bill introduced by Senators McGovern and Hatfield, Representatives Bingham and Morse. This seems to be a way to help us with this problem.

CONCLUSION

We must take a rare look at ourselves and become more aware that because of our priorities, because of our bigots within the Government and within our country, we are living in a world of trouble. More importantly, we must prove we are strong enough and powerful enough and decent enough to overcome.

We do this only if we are willing to extend the helping hand to prove we do care. If we take care of our needs at home, we will not have to be as concerned about our enemies abroad. This will make us strong. Strike the funds for Safeguard and use them to help the poor.

If our people can help themselves in my view it will bring a tremendous amount of pride and dignity and self-respect to our people. Certainly we urge the committee to take into consideration some of the suggestions we have made.

Thank you very much, gentlemen.

Mr. MAHON. Thank you very much, Mr. Robinson, for your appearance. We will be glad to give consideration to your views.

The problem of what to do about having an adequate defense for this country in the threat of pagan communism is a question that people have various views about. I think all Americans want to keep America strong and we all want to do what we can to avert World War III, which would be catastrophic insofar as civilization is concerned, and we want to do the best we can for our own people.

We want to help our people help themselves and we want to do the best we can for humanity everywhere.

We will be pleased to give consideration to your statement.

Mr. ROBINSON. Yes, sir.

I would just like to say though, in light of what you have said, it would certainly appear to me that when we talk about doing the things that you talk about, with 80 percent of the people in this world being colored looking at us, I think they are looking to see whether or not we are taking care of the needs at home, and when we talk about doing things throughout the world, we talk about colored people and we talk about black people and we talk about the problems that exist. In my view, I think we build our prestige and we build whatever is going to follow by taking care of the needs at home.

It appears to me that we are directing our priorities in the wrong way in terms of helping people. I think that these colored people throughout the world who are being told by the Red Chinese, "Let's get back at our white enemies," if they can see us turning our priorities to helping people at home, I think it would help us a great deal in eliminating some of the problems that we face not only here at home but throughout the world.

Mr. MAHON. What you are doing, you are advocating, while we are doing a great deal now, spending billions for the poor, regardless of creed or color, your feeling is that we should do much more, as I understand your testimony.

Mr. ROBINSON. I just feel we have to do whatever is necessary to take care of these people. We look at statistics that prove we are not doing enough. I think we have to look at this more so than we look at, perhaps, some of the things we are doing overseas.

Mr. MAHON. Thank you very much.

SAFEGUARD ABM SYSTEM

WITNESSES

DR. HERBERT F. YORK, REPRESENTING THE FEDERATION OF AMERICAN SCIENTISTS

DANIEL M. SINGER, GENERAL COUNSEL, FEDERATION OF AMERICAN SCIENTISTS

Mr. MAHON. We are busily engaged in seeking to evaluate the request of the administration for funds for the Department of Defense. You have been before this committee many times with the Department of Defense. We are pleased to have you with us this morning. Give us a little background of what you are doing now, Dr. York.

Mr. YORK. My primary job is at the University of California, San Diego, which is situated in La Jolla and is sometimes known better by that name. At the present time I am chairman of the physics department there. I am also a trustee for the Aerospace Corp., and the Institute for Defense Analysis. I was until April 29 a member of the General Advisory Committee of the Arms Control and Disarmament Agency, which is a statutory committee. I am still a consultant but President Nixon accepted the resignations of all the members of that committee and I guess of all other State Department committees.

Mr. MAHON. Thank you. You may proceed with your statement.

Mr. YORK. Mr. chairman and members of the committee, I am grateful to you for extending an invitation to the Federation of American Scientists to participate in these hearings, and I am grateful to that organization for asking me to be their spokesman on this occasion.

As in the case of everyone who has so far testified before the Congress on the subject of the ABM, I endorse the President's basic objective of maintaining the credibility of our strategic deterrent. I also strongly endorse his desire to avoid any actions which might jeopardize the possibility of conducting successful strategic arms limitations talks as soon as possible. However, I do not agree that the proposed phase deployment of the Safeguard ABM system would be an effective way to preserve the credibility of the deterrent. And further, I do suggest that while such a deployment probably would not have any influence on getting strategic arms limitation talks started, it could very well seriously inhibit a successful outcome to such talks. My reasons for so believing are similar to those given before other committees of the Congress in earlier hearings by other witnesses as well as by myself, so I will simply briefly summarize them for you here; we could go into any of them in more detail later should you wish it.

First of all, I do not believe the deterrent is in the kind or degree of danger that Department of Defense spokesmen have suggested. Our deterrent consists of three major parts: silo-based ICBM's, submarine-based SLBM's, and bombers. It also has a number of minor components including carrier-based bombers and the short-range bombers based in Europe and elsewhere. Each of these components has entirely different kinds of potential vulnerabilities and entirely different ways of guarding against their exploitation. Thus, while it is possible, even though not probable, that the Minuteman component of our deterrent may become endangered in the midseventies by the Soviet SS-9

buildup, it is not at all credible that all three major components would become endangered at the same time. In this connection, I wish to point out that while the Minuteman, unfortunately, only has the two options of either remaining in its hole or flying toward a target on a ballistic projectory, the other two major components of the deterrent have a wide variety of possible alert statuses, and a wide variety of tactics are available for protecting them against various unforeseen contingencies. It may indeed turn out eventually to be quite unfortunate that the Minuteman is so inflexible, but as long as the other components of the deterrent are not similarly so limited in tactics, we need not now become excessively worried about it.

Secondly I do not believe that Safeguard could, in fact, safeguard the Minuteman component of our deterrent even if it "works" in the technical sense. Safeguard is a system which in phases I and II together contains only a small number of missiles (that is, small compared to the size of the Minuteman force) and a still smaller number of MSR's (missile site radars) which are, on the one hand, essential to the operation of the system and, on the other hand, are an order of magnitude softer than the silo-based missiles the system is designed to defend. Thus, Safeguard itself can be attacked and exhausted or destroyed by smaller less accurate warheads, while the larger more accurate warheads are held in reserve for a free ride against the Minuteman moments later. Alternatively, a somewhat larger force of the larger missiles could be built up and then it would be possible to go after both Safeguard and Minuteman simultaneously. Of course, a very much larger and much more expensive ABM system could in principle, if not in practice, handle this problem, but that is not at all the sort of thing that could be bought with any of the various budgets currently being discussed.

Third, I have grave doubts whether Safeguard will, in fact, "work." Here I have three major factors in mind:

(1) The battle between penetration aids and penetration tactics on the one hand and discrimination techniques and interception methods on the other. This battle is, to be sure, easier in the present case of defending hard points than it was in the earlier case of defending large soft targets. Even so, in the event of a large sophisticated attack on our Minuteman, which is the only kind we need be concerned about here, I believe the outcome still definitely favors the offense.

(2) The system requires a hair trigger so that, after standing ready for an indefinite number of years, it can fire at precisely the correct second after only minutes of warning. The system must at the same time have a trigger stiff enough so that it will not fire on a false alarm and so that it cannot be fired without authorization by the highest authority. The Army has assured us repeatedly that such authorization is required and I concur most heartily in this requirement. However, the requirement for hair trigger so it will fire when needed and a stiff trigger so it never will fire when it shouldn't are contradictory requirements which must lower the system's reliability. The situation is different in the case of our offensive missiles, which do not necessarily have to be subject to this same contradiction. In order to retaliate a missile need not, in general, be fired at some precise instant which was determined by the side which struck first.

(3) There is also the great difference between the test range and the real world. On the test range test crews use test equipment to intercept U.S. targets accompanied by U.S. penetration aids at a known time and under contrived conditions. In the real world operational crews must use operational equipment to intercept enemy missiles accompanied by enemy penetration aids launched at an unknown time and must do so in an atmosphere of total astonishment and disbelief. I realize that Defense Research and Development officials are aware of some of these differences and are trying to cope with them, as witness the recent special tests of deployed Minutemen. That is all very well and to their credit, but some substantial lack of confidence in the system must remain by reason of this major, though unquantifiable, factor. In all of this, it is important to note again certain differences between offensive and defensive missiles. Once an individual offensive warhead is finally on its way, it need "do" nothing until it contacts the ground (or arrives at some preset height) at which time it has only to explode. The defensive system must, in a matter of only some seconds, puzzle its way through the deceptive devices and tactics of the total offensive payload, and then explode its warhead at precisely the correct time and place, neither of which can be predetermined before the battle starts. This latter is intrinsically a much more complex problem and hence the subtler differences between the test range and the real world matter much more in the case of defensive missiles than in the case of offensive missiles.

Thus in summary, I believe that the proposed Safeguard ABM system will probably not "work," I believe that even if it did work, it could not safeguard the Minuteman component of our deterrent, I doubt that the Minuteman itself will be endangered by the Soviet offense in the mid-seventies and even if it were, I find it incredible that the deterrent as a whole would be in danger at that time. Even so, one still might suggest that it would be prudent to deploy the Safeguard if such a deployment would do no harm, so let us examine that matter.

It could do harm, of course, by diverting money from other places where it might be more sorely needed, as for instance, either in civil programs or in military programs better suited to satisfy critical defense needs. Let me pass over these for now and turn instead to its relationship to the arms race. It is frequently said that the ABM or at least some versions of it does not have serious arms control implications. The reasons advanced have to do with its intrinsically defensive character. In my opinion, such a belief is based on an error which may be called the "Fallacy of the Last Move." It is indeed true that if the last move ever made in the arms race consisted in deploying an ABM system, then deploying the ABM by definition would not have any arms race implication, but in the real world of constant change in both the technology and the deployed number of all kinds of strategic weapons systems, ABM's are accelerating elements in the arms race. In support of this, let us consider a relevant bit of recent history.

At the beginning of this decade, we began to hear about a possible Soviet ABM and we became concerned about its potential effects on our ICBM and Polaris systems. It was then that we began seriously to consider various penetration aid ideas, among them that of placing more than one warhead on a single offensive missile. This idea has

since grown in complexity as these things do and has resulted in the MIRV concept (multiple independently targetable re-entry vehicles). There are now additional justifications for MIRV besides penetration, but that is how it all started. As others have pointed out, the MIRV concept is a very important element in accelerating the arms race and potentially seriously destabilizing. In fact, the possibility of a Soviet MIRV on the SS-9 missile is used as one of the main arguments in support of the idea of hardpoint defense and thus we have come one full turn around the arms race spiral. No one in 1960-61 thought through the potential destabilizing effects of multiple warheads and certainly no one predicted, or even could have predicted, that the inexorable logic of the arms race would carry us directly from Soviet talk in 1960 about defending Moscow against missiles to a requirement for hardpoint defense of offensive missile sites in the United States in 1969. Likewise, I am sure, the Russians did not foresee the large increase in deployed U.S. warheads that would ultimately result from their ABM deployment.

Similarly, no one today can describe in detail the chain reaction which the Safeguard deployment would lead to. I think we can, however, see what its outline would be. Let us suppose for the sake of argument that the Safeguard ABM system will be deployed. Both in the United States and the U.S.S.R., strategic analysts will apply what is known as "worst case analysis" to the situation. The Soviet analysts will look at it and say, "We don't know if it will really work or not, but we must assume it will." Soviet officials in charge of the deployment and development of offensive weapons will, eventually, act accordingly. On our side, and despite the present rosy technological views to the contrary, our strategic analysts will look at it and say, "We don't know if it will really work or not, but we must assume that it won't." U.S. officials in charge of the deployment and development of offensive weapons will, eventually, act accordingly. I do not know precisely what we will do in that case, but I do predict that some kind of frantic effort to really safeguard (or replace) the Minuteman will be undertaken. In other words, the kind of uncertainty that will be inevitably introduced into strategic thinking by the deployment of an extensive ABM as a part of the deterrent will seriously disturb both sides and create an atmosphere of disequilibrium in which effective arms control will be even more difficult than it is now.

I should like now to turn from this matter of the arms race and to raise one further question. That is: What ABM system are we really talking about here?" To explain what I mean, and to explore this question, let me first recall a part of Secretary McNamara's famous San Francisco speech. With reference to a possible Chinese missile threat, he said, "* * * there are marginal grounds for concluding that a light deployment of U.S. ABM's against this possibility is prudent." A few lines later he warned, "the danger in deploying this relatively light and Chinese oriented ABM is going to be that the pressures will develop to expand it into a heavy Soviet oriented ABM." The record makes it all too clear that he was probably all too right in this prediction. Let me also quote from Donald Hornig's testimony given before the Senate Subcommittee on International Organization and Disarmament Affairs just a little over 2 weeks ago. He said:

If I were convinced that the protection of a credible deterrent were indeed the eventual goal and that Safeguard was the best way to protect our deterrent, I would support it. But the uneasy feeling persists that although Presidents may change, Secretaries of Defense may come and go, the philosophies enunciated by our political leaders may change, the design of our ABM system hardly changes at all. It includes the same radars, the same rockets, and largely the same deployment which was contemplated for the "heavy" defense. Safeguard continues to look like a first step toward a much bigger, more expensive and still ineffective system.

Thus, the ABM appears to me to have all the characteristics of a solution in search of a problem and I suggest that the fundamental reason you have this ABM decision before you today is that in 1959, Secretary of Defense McElroy, in dividing up the space and missile roles and missions among the three services assigned the ABM to the Army as its only large sophisticated missile program. This created a situation in which for many years the lives and careers of many able persons have been closely entwined with the life and fate of one single program: the Army's ABM. This includes not only the civilians employed in the program office and by the main contractors, it also includes uniformed personnel and probably just as importantly, a whole host of part-time advisers at all levels. If, in fact, we examine closely the testimony given by persons who are part-time advisers to the Defense Establishment and who were also in favor of deployment of the present ABM, we find that with only very few exceptions, they favor Safeguard, not as an end in itself, not for the purposes which the President laid down, but rather as a prototype of something else, much bigger, much more complex, and enormously more expensive. They want a grand system which they hope could protect not only the deterrent but the rest of what goes to make up the United States of America as well. In short, they want to do a job which almost certainly cannot be done, which equally certainly would result in a reaction by the Soviets which would more than offset even the theoretical capability of such a system, and, again equally certainly, would cost vastly more money than the sums anyone is now talking about. In short, it seems to be almost impossible for the United States to build a thin ABM system.

Let me end on a more positive note. An ABM designed and deployed as part of a truly major arms control and disarmament agreement might be a useful theory. Such an agreement might, for instance, involve the elimination of one offensive missile for each defensive missile deployed. Along with others who have discussed this matter, I agree that a world in which this ratio was reversed, and if those two choices, and only those two choices, were in fact being offered, I would take the first. However, I emphasize that both the design and deployment must be specifically configured with the reduction of offensive forces in mind, and major deployment should follow and not precede formal international agreements to this effect.

Thank you, Mr. Chairman.

Mr. MAHON. Thank you, Dr. York.

We have had before us the Secretary of Defense, who has testified in behalf of the Safeguard system. Later, we will have the Secretary of the Army and others, along with the Secretary of Defense and others for further discussion of the ABM system.

We remember your appearance through the years before this committee. Your testimony was always most interesting.

Of course, you testified in favor of programs that later didn't work, I believe.

Mr. YORK. Yes, there were such.

Mr. MAHON. We appropriated funds for programs which were recommended by you and your colleagues in the Department of Defense at an earlier time. We all recognize that the problem of defense is one of almost unbelievable complexity. No one knows all the answers. I think it is good to have a man of your stature to appear before the committee and give your views of this highly controversial matter. I think the position of the House of Representatives is that whereas the Soviet Union has in being or is working on an ABM system of sorts, that it would be unwise for the United States not to take appropriate action to provide some defense against the Soviet ICBM. If the Soviet has some sort of defense, valid or not, against the intercontinental ballistic missiles of the United States, it would seem that it would be a bit militarily and politically unsound for this country not to react appropriately in order to have some defense against possible attack by the ICBM's from the Soviet Union.

Mr. YORK. May I comment?

Mr. MAHON. Do you more or less agree with this?

Mr. YORK. I agree with it in part, Mr. Chairman.

Mr. MAHON. As I understand it, you would like to keep this on the level of research and development rather than to go forward with deployment.

Mr. YORK. I would like to keep the ABM program on the level of R. & D. I think one has to react. We reacted to the Soviet ABM when I was in the Defense Department. That is when we began the penetration aids program and MIRV program. I think we overreacted. We reacted in 1960 to the Soviet ABM program in such a way that there are many more warheads than there would have been if we had not reacted to that ABM. What the President is talking about doing is quite different from what the Russians have done. The Russian ABM is around Moscow and hypothetically defends Moscow. I do not think it does. It has resulted in much more American firepower being aimed at Moscow.

The President is proposing a deterrent and, therefore, one should judge the Safeguard system whether it does or does not prove the credibility of the deterrent, because that is what the President says. It was the Sentinel system that was designed to protect cities but against the Chinese threat. Now we are talking about the Safeguard, which is the same system but designed to protect the deterrent against the Russian threat, not to defend American industry or population. The deployment of phases I and II is a deployment designed to protect the deterrent.

Mr. MAHON. You and I have had considerable experience in defense. I assume we would agree that if the arms race continues that we will do the best we can to build a defense against the intercontinental ballistic missile and the Russians will undertake to build the best defense they can against intercontinental ballistic missiles. This would seem to be more or less a fact of life.

As I understand it, there are many who feel that if the United States proceeds with a very limited Safeguard system that this would not be to our disadvantage at the conference table with the Soviet Union

but might very possibly be to our advantage. They feel that this would make it more urgent that some sort of agreement be reached to slow-down the arms race.

I think all of us would like to see the arms race slowed down. I do not think we believe that it is possible or practical to have disarmament. Certainly I do not believe so. But I would like to see us reduce armament programs insofar as we safely can.

I rather subscribe to the view that if we are proceeding with a limited ABM system, this would tend to bring into focus this whole issue of a meaningful and ironclad and dependable and safe agreement for some slowdown in the arms race. What is your reaction to this?

Mr. YORK. I think MIRV provides us with sufficient stimulus and the Russians, too, for getting at talks and for trying to make something come out of them. I do not think we need a further stimulant. As I said in my remarks, I do not think the issue of deployment of the ABM has any bearing on whether the talks start. I have the feeling that it makes the outcome more difficult, it inhibits the successful outcome, and I say that for a number of reasons. Perhaps the main one of which is that the record of being able to undo something that you have already done is so extremely difficult.

Getting rid of a weapons system once it is deployed turns out to be much harder, as you know better than I, than stopping one which is in development or stopping it at the interface between development and deployment. If you want to stop something, that is the time to stop.

Mr. MAHON. Are there any questions?

Mr. LIPSCOMB. Yes, Mr. Chairman.

Mr. York, you are appearing here in behalf of the Federation of American Scientists.

Mr. YORK. Yes.

Mr. LIPSCOMB. What kind of a group is that?

Mr. YORK. It is an organization which started soon after World War II. It was started by persons who had been at the Los Alamos Scientific Laboratory and elsewhere, for the purpose of considering the relationship in those days between atomic energy and politics and society, and so forth. I cannot give you—perhaps Mr. Singer could give you a better answer than I can.

Mr. SINGER. I am the general counsel for the Federation of American Scientists. I am an attorney here in Washington. As Dr. York says, the organization was formed in 1946 by the coming together of groups of scientists from the various laboratories that had played a role in the manufacture of the initial atomic weapons. In the 20-plus years that it has been in existence, it has by and large held quite true to its initial charter which described it as an organization of scientists concerned with the impact of science on national and international affairs. Throughout the generation that it has been around, it has grown to a membership now of approximately 2,000. At the outset it involved well over half of all of the scientists who had participated in the laboratory projects involved with the initial development of the atomic bomb. I can expand it at somewhat greater length if it is of interest to you.

Mr. LIPSCOMB. What do they do, meet in conference and set policy?

Mr. SINGER. The organization is composed of essentially members at large who can be any place in the country, as well as chapters. There

is a council of approximately 40 members, the majority of whom are delegates at large elected by the membership, and the balance are delegates from chapters. Chapters are located in such places as Brookhaven, in Washington, Chicago, Seattle, and on the west coast, as well as Los Alamos.

Mr. LIPSCOMB. Does this Federation of American Scientists agree with your position? Is that why you are here testifying?

Mr. YORK. They invited me to testify knowing what I have said before the Senate Armed Services Committee and Senate Foreign Relations Committee before. As I said today, as I mentioned here, this is almost entirely a restatement based on what I have learned. I think all of us, certainly myself, have learned a great deal from these hearings that have been held the last 3 or 4 months. There is no poll of the membership on this, but I was in touch with members of the executive committee.

It was the chairman of the executive committee who called and asked me if I would act as spokesman for the organization.

Mr. LIPSCOMB. Do you concur with all the positions on issues that the Federation of American Scientists takes?

Mr. YORK. I do not even know what they are. I really couldn't answer the question. However, insofar as I know what they are, I generally do. I know personally the members or most of the members of the executive committee, and there is a committee of sponsors. I know that I generally agree with what they have to say on matters of this sort. The answer is generally "Yes," and it may very well be entirely "Yes," but I really don't know what all the positions are.

Mr. LIPSCOMB. Does the Federation of American Scientists put out a house newsletter or bulletin?

Mr. SINGER. Yes; there is a newsletter published 10 times a year by the federation. You might be interested, at the origins of the federation back in 1946, the publication of the chapter was something called the Bulletin of the Atomic Scientists. For other reasons, when the federation came together as a federation, the bulletin stayed for a short period of time as the publication of the Chicago chapter and later itself got an independent status. So that the bulletin now is not technically in any way a publication of the Federation of American Scientists, although at its origins it was the publication of a group that were part of the federation.

Mr. LIPSCOMB. But there are members of the Federation of American Scientists who contribute to the Bulletin of the Atomic Scientists?

Mr. YORK. Yes.

Mr. SINGER. Yes; and nonmembers also.

Mr. YORK. The Bulletin of the Atomic Scientists is now a general journal in the field of science and public policy. But it grew out of the same organization.

Mr. LIPSCOMB. Do you contribute to that?

Mr. YORK. They have published something I have written, but it was something which was previously in the public record. I may very well in the future. So far what they have published of mine, they published part of my testimony before the Congress. I think they have done that twice. It was republishing something that was already on the record.

Mr. MINSHALL. Mr. Singer, you said you had 2,000 members.

Mr. SINGER. Approximately; yes.

Mr. MINSHALL. Are they all active members?

Mr. SINGER. The number 2,000 is a summary of essentially the dues-paying members.

Mr. MINSHALL. What are your dues?

Mr. SINGER. The minimum dues are \$7.50 a year except for students who are still given a rate of \$4 a year. They are quite nominal.

Mr. MINSHALL. Do you receive any other kind of financial support from foundations or private individuals?

Mr. SINGER. Over the years we have had without any regularity or systematic process small gifts—gifts of certainly under a thousand dollars, generally in the neighborhood of \$100 or \$200, from individuals who I would say have an emotional attachment and have over the years had such an attachment with the organization. The newsletter itself may be purchased for \$2 a year by subscription. The number of newsletter subscribers, I think, is measured in a few hundred.

Mr. MAHON. Would you let us have copies of the newsletter for the last year?

Mr. SINGER. Certainly.

(The information was provided to the committee.)

Mr. MINSHALL. You receive no funds of any kind from any foundations. Your sole source of income is from private individuals, of donations of less than \$1,000. Is that a fair statement?

Mr. SINGER. If 15 years ago someone gave \$2,000 I am unaware of it. It may have happened. One other source I should have mentioned is that at various times we have solicited our members for special contributions. Back in 1962 the Federation of American Scientists conducted a series of briefing breakfasts for Members of the Senate and their staffs in connection with the nuclear test ban treaty and I think just prior to that in connection with the statutory status for the United States or what was previously the U.S. Dearthment Administration and became the Arms Control and Disarmament Administration. There were special contributions made at that time.

Mr. MINSHALL. Dr. York, who is paying your expenses for your appearance here?

Mr. YORK. I am back here for another meeting tomorrow. No one is paying my expenses for today.

Mr. MINSHALL. Overall you are not taking this out of your own pocket.

Mr. YORK. Not my transportation; no. Today's living costs, yes, but then I would have to live somewhere anyway, although I would not be in a hotel if I was home.

Mr. MINSHALL. Are you paying him any kind of fee?

Mr. YORK. We have not even discussed it. I had not intended.

Mr. MINSHALL. No promises have been made.

Mr. YORK. None. I will promise the reverse now if it is important?

Mr. SINGER. I did pay for Dr. York's fare from the Cosmos Club to the House this morning.

Mr. MINSHALL. What other recent projects, if I might call them such, have you espoused or opposed in the last few years, or your organization?

Mr. SINGER. The organization as such.

Mr. MINSHALL. Yes.

Mr. SINGER. Aside from the opposition to the ABM we have opposed development and testing of chemical and biological weapons, a subject which the federation started becoming interested in, I would say, 3 or 4 years ago and has consistently taken a position against the development and testing of CB weapons. We took a position against the use of defoliants and other types of chemical or gas weapons in Vietnam.

Mr. MINSHALL. Anything else in the last 8 or 10 years?

Mr. SINGER. Eight or 10 years? Very much in favor of the formation of the Arms Control and Disarmament Administration. Very much in favor of the Senate's giving its advice and consent to the nuclear test ban treaty. Similarly with respect to the Nonproliferation Treaty.

Mr. MINSHALL. Is this a full-time job?

Mr. SINGER. For me? No; by no means. I am a partner in a law firm here in Washington and one of my clients whom I serve as general counsel is the Federation of American Scientists.

The name of the law firm, if the reporter will bear with me, is Strasser, Spiegelberg, Fried, Frank & Kampelman, a firm consisting of approximately 100 lawyers, about 80 or 85 of whom are based in New York and the balance based here in Washington.

Mr. MINSHALL. How many are on your executive committee?

Mr. SINGER. There are seven members of the executive committee.

Mr. MINSHALL. Who are they?

Mr. SINGER. Present chairman as of the end of April is John Rasmussen, who is a chemist at Yale University. The secretary is Lincoln Wolfenstein, who is, I believe, a physicist at Carnegie-Mellon University. The treasurer is Leonard Rodeberg, a physicist at the University of Maryland. The other members of the executive committee include Jay Orear, a physicist in the laboratory of nuclear studies at Cornell University. Jack Hollander who is a physicist on the west coast, either Stanford or Berkeley. Dan Boloef from Pittsburgh.

Mr. MINSHALL. You can put the rest in the record.

(The information follows:)

The other members are: Dr. Cameron B. Satterthwaite, University of Illinois, Urbana, Ill.; Miss Judith Eckerson, Newsletter editor, Washington, D.C.

Mr. MINSHALL. If I understand correctly from the previous questioning you have never taken a poll of your members or your executive committee.

Mr. SINGER. On all issues?

Mr. MINSHALL. On this issue.

Mr. SINGER. On the ABM issue, the executive committee and the Council have met as recently as the end of April on the ABM.

Mr. MINSHALL. Did they adopt a resolution?

Mr. SINGER. I believe there was a resolution and statement adopted at that time.

Mr. MINSHALL. You are not sure, though?

Mr. SINGER. I do not want to go on record as being absolutely certain.

Mr. MINSHALL. Check the record and supply it for this record.

Mr. SINGER. At a meeting of the Council at the end of January such a resolution was adopted and statement issued.

(A copy of the statement follows; additional material was provided to the committee:)

FEDERATION OF AMERICAN SCIENTISTS,
Washington, D.C., February 7, 1969.

RESOLUTION OF THE FEDERATION OF AMERICAN SCIENTISTS

The Federation of American Scientists (FAS) today announced plans to wage a major ongoing campaign against the deployment of anti-ballistic-missile systems (ABM) and independently guided multiple warhead missiles (MIRV). Either of these programs would fundamentally undermine the prospects for the stalled United States-Soviet strategic talks. Separately, and especially together, they will destabilize the strategic context. In a decade, these weapons might absorb more than \$50 billion. In this campaign, FAS plans to expand its activities, to organize its membership, to petition Congress in person and by mail, and to educate local citizen groups using suitable materials and lectures. Opposed to the deployment of these systems for some years, the FAS believes that each can now be decisively deferred or defeated if their implications are brought home to public and Government.

While calling upon the administration to "give the United States-Soviet strategic talks a chance," the FAS reaffirmed its views that the ABM system under consideration is an expensive and ineffective boondoggle—one uniformly opposed by past Presidential science advisors. The congressional and administration support for the missile defense Sentinel system last year was an exercise in political bemusement complete with fears of widescale Soviet ABM deployment—now known to be false; with anti-Chinese rationalization of Sentinel's purpose—now disowned by its supporters; and with Johnson administration efforts to avoid antimissile gap charges, in and election Lyndon Johnson then expected to fight.

The deployment now of the Sentinel missile defense would decisively limit the U.S. Government's freedom to negotiate, when the strategic talks begin. Politically, the dismantlement of an existing system would be very difficult. Thus Sentinel would effectively preclude U.S. negotiations aimed at forestalling a Soviet defensive system. It is the deployment of Sentinel, not its deferral, which ties the hands of the U.S. Government in future negotiations. A deferred system can always be built later.

Moreover, if negotiated agreements are not able to forestall a Soviet missile defense system—now universally agreed to be only a token defense of a single city—then the U.S. MIRV program cannot be halted. Its avowed purpose was the penetration of a Soviet city missile defense. But the MIRV program will multiply U.S. warheads several times threatening Soviet land-based missiles and encouraging a Soviet MIRV program. Soviet multiplication of warheads on each launcher will threaten, in turn, U.S. land-based missiles. And both sides will then fear that neither land nor sea-based missiles are reliable deterrents. In this way, and by strengthening political, economic, and military vested interests on both sides, U.S. deployment of ABM and MIRV will generate pressures not likely to be controllable in emerging U.S.-Soviet strategic talks.

During the 1965 White House Conference on International Cooperation year, the U.S. Committee on Arms Control and Disarmament called for a 3-year moratorium on the deployment of MIRV and ABM in anticipation of possible United States-Soviet agreement. If the Nixon administration does not follow some such course the pursuit of false arms race goals will squander both the credibility of its drive for peace and the resources needed for domestic renewal. Faced already with hard choices at home and in Vietnam, we cannot afford to open a new front in an already overblown, sterile and discredited competition in arms. The Council of FAS calls upon the administration to defer the ABM and MIRV programs, to give the strategic talks a chance.

The Federation of American Scientists is a nationwide organization of 2,000 scientists and engineers concerned with the impact of science on national and international affairs. The Federation of American Scientists was organized in 1946.

Mr. MINSHALL. But at no time have you taken a poll of your entire membership?

Mr. SINGER. On the ABM issue?

Mr. MINSHALL. Yes.

Mr. SINGER. That is correct.

Mr. MINSHALL. That is all.

Mr. DAVIS. Dr. York, you have me a bit puzzled.

I was not on this committee last year, but I take it you did work in this general area in the Pentagon. I gathered from your comments this morning that you have always had misgivings about this program but you waited until you got out of the Pentagon in order to publicly voice them. Is that a fair statement?

Mr. YORK. No, sir.

Mr. DAVIS. Tell me where I am wrong. That is certainly the impression I got.

Mr. YORK. In your very last remark. At all times I supported R. & D. in what was then the Nike-Zeus program. But that was the predecessor of the Nike X which was the predecessor of the Sentinel, which was the predecessor of the Safeguard. I favored the research and development in the Nike-Zeus. I established an R. & D. program known as the Defender program which lasted up until this last year. Whenever the issue then came up about deployment of the Nike-Zeus. I opposed it. The record of this committee as well as other congressional committees, I am sure, would cover that because it was a hot issue when I was in the Pentagon. The question of should we deploy the Nike-Zeus was an issue then. I opposed it. You might ask, am I on a track I cannot get off of, but my record is certainly consistent. It may be too consistent but it certainly is consistent. I did that incidentally under Secretary McElroy, Gates, and again under McNamara.

Mr. MINSHALL. If my memory serves me correctly, you also recommended BOMARC very highly.

Mr. YORK. I can't recall what I said on the subject of BOMARC. BOMARC, as a part of the SAGE system—I may have said when I first came in and was learning about these things, I probably did support its inclusion in the program—I think down the road I became disenchanted with the SAGE system before I left the Pentagon.

I honestly cannot recall what I had to say about BOMARC as an item. I will say it was never a favored program of mine.

Mr. MINSHALL. It was several billion dollars worth.

Mr. YORK. BOMARC was started long before I was involved. BOMARC is not something that was started when I was there. The SAGE system was cut back when I was in position in the Defense Department, however. One of the major elements of the cutback in the SAGE system was the decision to deploy only a very few squadrons. At one time there was a plan to put BOMARC almost entirely around the periphery of the United States. While I was in the Pentagon that was cut back to the point where—whatever it is today. There are only a few BOMARC squadrons. I am sure you know better than I. There were never very many BOMARC squadrons deployed.

Mr. MINSHALL. That is an understatement. It never has been successful.

Mr. YORK. The SAGE system as a whole, I developed considerable doubt about. That includes the BOMARC.

Mr. MINSHALL. Your testimony is all in the record in 1960. I am not going to belabor this hearing with that now.

Mr. YORK. I had not refreshed my memory about it.

Mr. DAVIS. Doctor, is this also an unfair statement, that apparently you are in favor of continuing to develop these things and test these things but never establish a prototype?

Mr. YORK. No; it is not quite a fair statement.

Mr. DAVIS. I didn't think you would think so; I am probing from what you previously told us.

Mr. YORK. Let me try to answer that. I have been in favor of the development program for several reasons. I don't know whether they are in the record of this committee or elsewhere, but I have been in favor of the development program really for two reasons. One is that it is through the Nike-Zeus R. & D. program and its successors that we understand ourselves what it takes to overcome any hypothetical ABM that the Soviets might build. So, one reason for supporting the development program has been just as a supportive program to the development of our offensive systems.

Second, I supported the program always on the grounds that at some point, even though I don't really expect it, one might develop something that is in fact useful. The last part of your remark I have forgotten.

Mr. DAVIS. Whether we should ever establish a prototype.

Mr. YORK. It is a question of what you mean by a "prototype."

Mr. DAVIS. I am talking specifically about Safeguard.

Mr. YORK. Yes. The present equipments set up out at Kwajalein, the Kwajalein base was largely established during my tenure in the Defense Department and that was established for the purpose of putting test equipment which could become prototype equipment for whatever the ABM system might be. Kwajalein is a place that one can shoot at and conduct effective experiments in this field. It is just nicely within range of the Pacific Missile Range, which is something that I did promote. When I say that, I am sure it would have happened if you had never heard of me, but the fact is, I was involved in the establishment and promotion of that particular test arrangement between missiles fired from Point Arguello and Vandenberg Air Force Base and the equipments for both measurement and test which were placed at Kwajalein Atoll.

Mr. DAVIS. That is all, Mr. Chairman.

Mr. SLACK. Mr. Lipscomb.

Mr. LIPSCOMB. Dr. York, I had not intended to get into questioning you or discussing this with you because you have participated in so many conferences that your views are well known, but do you believe that the Poseidon-MIRV warhead is a credible weapon for attacking Soviet ICBM's and their silos?

Mr. YORK. That may not be in its first version. The Poseidon-MIRV or the combination of accuracy and payload as being presently programmed for the Poseidon-MIRV system may not be a good way to attack Soviet silos.

Mr. LIPSCOMB. Do you believe that Soviet multiple warheads of the kind that SS-9 can carry have a good chance of destroying Minuteman in their silos?

Mr. YORK. Eventually. That is one place where there is a simple factual disagreement between me and some of the Defense officials. I do agree that such is ultimately possible, but I don't believe that that

is probable during the midseventies. It is the combination of everything, accuracy and explosive yield.

Mr. LIPSCOMB. You qualified it "midseventies." Do you want to get another time frame?

Mr. YORK. Yes; but let me say two things. I think it could happen in the early eighties. It could happen—all I mean by that is, if one extrapolates technology, and if things go on, if the kind of research and development programs that are going on in the Soviet Union as well as here continue in this field, then somewhere around then that might happen. There are presumably at the same time over here.

We are improving hardening, we are providing better passive protection to the Minuteman. I am inclined to agree with most specialists in the field though that eventually guidance will catch up with hardening. Guidance is more of an issue here than payload as, of course, you know, because it comes in much more powerfully. The kill radius goes with the cube root of the yield; whereas the guidance comes in a critical way. Eventually I think that the contest between guidance on the one hand and hardening on the other hand will eventually be won by guidance, but I don't think that will happen in the mid-seventies.

Mr. LIPSCOMB. You apparently concede that the Soviets may be building a first strike capability.

Mr. YORK. No; I don't really concede that. I admit to the numbers the Secretary says with regard to how many weapons they have and what their buildup rate is and so forth. I think the reason for that is just simply their reaction to everything being so far behind for so long.

Mr. LIPSCOMB. I don't understand that. What do you think they are building to?

Mr. YORK. What were we building to in the early sixties? The same thing.

Mr. LIPSCOMB. They were behind for a long time. Now we recognize a sense of parity. Now, where do you think they are going?

Mr. YORK. I don't know. They may be overreacting also. I don't know. On intercontinental missiles, maybe they will get 5 percent more. In submarines, they will probably get as many. In airplanes they probably won't. One doesn't see them developing aircraft to the point where they have as many.

Mr. LIPSCOMB. You understand the Soviet capability because you were associated with working against it at one time?

Mr. YORK. Yes.

Mr. LIPSCOMB. You do not understand their intentions as nobody does?

Mr. YORK. That is right.

Mr. LIPSCOMB. How can you continually avoid some working out of some possible deterrent in the mid-1970's and beyond?

Mr. YORK. I am not opposed to that. For instance, I am not opposed or I am in favor or doing whatever is necessary to maintain the credibility of the deterrent. I don't think an ABM does that. I think at the present time the best thing to do is probably—there are several things. In the case of the ICBM at the present time we probably should be undertaking programs to improve the hardening, going to the so-called super-hardening. In the case of the Polaris, we are in the process

of going from Polaris to Poseidon. There are other shorter range actions which could be taken if one does become very worried about this situation. So I am not opposed to doing something.

I am opposed to this particular way of doing it because I don't think it would be effective at all.

Mr. LIPSCOMB. So, as an alternative to facing up to this action that apparently the Soviets are taking, you are suggesting going into the so-called hard rock program with emphasis.

Mr. YORK. Yes.

Mr. LIPSCOMB. And all costs that it incurs. You also propose that we continue with the Poseidon and MIRV program?

Mr. YORK. Yes; although I would put highest priority for now on getting these strategic arms limitation talks going and having them come to a successful outcome. If a freeze on the MIRV was suggested early, I would be all for that.

The Poseidon is more than just MIRV. Poseidon is a bigger rocket.

Mr. LIPSCOMB. Everybody wants arms limitation talks.

Mr. YORK. That is right. The question is what you are willing to pay for it.

Mr. LIPSCOMB. We all want that. We don't exactly dictate the destiny of those. Do you think the Soviets have or will have a capability of first strike?

Mr. YORK. No.

Mr. LIPSCOMB. Do you want to clarify that?

Mr. YORK. So far as the present is concerned, I am assuming you mean by first strike what is usually meant, and that is they can mount such a strong attack that they don't have to be concerned about the retaliation that comes back. After all, anybody can strike first. It is a question. First strike capability usually means you can do it so strongly that you won't get hit back. My answer to that is they don't have it now. I do not believe they will have it in the midseventies. I would say that even if we did nothing.

I don't recommend doing nothing, but I believe that would be the case even if we did not.

Mr. MINSHALL. Doctor, I am not sure you are answering the question. Do the Soviets have a first strike ICBM capability as of June 9, 1969?

Mr. YORK. Not in the sense that is usually said.

Mr. MINSHALL. Beg your pardon. My question is very simple: Do they have that capability or don't they?

Mr. YORK. Anybody can strike first.

Mr. MINSHALL. They have the capability?

Mr. YORK. Not in the sense the words are usually used.

Mr. MINSHALL. Do they have the capability or don't they?

Mr. YORK. Not in the sense the words are usually used.

Mr. MINSHALL. My words are very simple. They came out of the English dictionary. In your opinion, do the Soviets have a first-strike ICBM capability?

Mr. YORK. In the jargon of strategic analysis that has a special meaning.

Mr. MINSHALL. I am asking you as one layman to another layman for the minute.

Mr. YORK. Anybody who has one missile could strike first.

Mr. MINSHALL. That is all I want to know. And they have a lot more than that?

Mr. YORK. That is right.

Mr. EVANS. I assume the last half of the question is, with one missile they can strike first but they cannot possibly get away with it.

Mr. YORK. The term "first strike capability" as Mr. Laird used it meant that they were going for a situation in which they would have enough power so if they would strike first they would not have to fear the residual retaliation. That is what the phrase usually means. That I don't believe they do have. Mr. Laird says they don't have it.

Mr. Packard says they don't have it, et cetera. The argument is whether that situation will still pertain in the midseventies.

Mr. Laird suggests it may not, whereas I believe it very definitely still will. That is where the argument is.

Mr. MAHON. Thank you very much, Dr. York.

RESERVE FORCES

WITNESSES

COL. JOHN T. CARLTON, EXECUTIVE DIRECTOR, RESERVE OFFICERS ASSOCIATION OF THE UNITED STATES

COL. ARTHUR A. BRACKETT, U.S. AIR FORCE (RETIRED), DIRECTOR, AIR FORCE AFFAIRS

COL. JOSEPH L. CHABOT, U.S. ARMY (RETIRED), DIRECTOR, ARMY AFFAIRS

Mr. MAHON. We have before us our old friend, Col. John T. Carlton, executive director of the Reserve Officers Association of the United States. Will you introduce your group and proceed?

Colonel CARLTON. Admiral Jackson, Colonel Chabot and Colonel Brackett.

Mr. Chairman, I have a brief statement which I will read for the record.

Mr. Chairman and members of the committee; we appreciate this opportunity to express our views concerning Reserve personnel appropriations for fiscal year 1970 for the Selected Reserves of the Reserve components of our Armed Forces.

In this statement we are addressing ourselves to the proposed strength authorization of the various reserve components, except for the National Guard and Coast Guard Reserve.

We note, that with the exception of the Air Force Reserve, the proposed strength authorizations as contained in S. 1192 are generally of the same magnitude as provided in the fiscal year 1969 authorization bill—Public Law 90-500.

We understand fully the priority concentration of available means toward our efforts in Southeast Asia. However, when our commitments in Southeast Asia are reduced or eliminated it will undoubtedly result in a consequent clamor for reduction in active force strength. Additionally, the search for an all professional force will require more and more reliance on strong, Ready Reserve forces, including expanded elected Reserve strengths for each component.

Thus we are confident that your committee and the Congress, as a whole, will make it known to Defense officials that plans should begin

now toward developing the kind of Reserve components in composition and numbers, which will be available as an immediate backup to the active forces. The planning and equipping and training of these forces, takes time.

Following are our views concerning the Reserve components of each service:

ARMY RESERVE

Experience in maintaining large military forces overseas reflects the strain upon our active forces to meet new contingencies and the consequent necessity to have available a greater base for quick mobilization. We have been told that our failure to retaliate when the North Koreans shot down our reconnaissance plane over the Sea of Japan in violation of international law was because of our inability to take on another major contingency. Furthermore, our country's ability to negotiate successfully with opposing forces can only be accomplished from a posture of military strength.

Therefore, we believe that the Army's Selected Reserve should be increased to a strength of 400,000 and that this increase should be made concurrent with any reduction in the strength of the active Army which may result from cessation or diminution of hostilities in Vietnam.

We recommend to you that this increase in strength should be structured by the reestablishment of the six Army Reserve combat divisions that were disestablished in 1965. These divisions should be highly trained, properly equipped and ready for immediate mobilization and early deployment.

It should be borne in mind that upon any substantial reduction in the active Army there will be large numbers of highly trained personnel in both the officer and enlisted ranks who will return to civilian life and would be available for service in Reserve units, but they would be attracted to combat units for which their experience would fit them. They would provide a very high quality input into these combat divisions that would otherwise be lost.

Furthermore, it is a disservice to our country to close our eyes to the fact that the lack of self discipline that has grown in our society and the wholesale disregard of law and order which has developed is such as to imperil the internal security of our Nation if all the combat divisions now structured in the National Guard were deployed. The maintenance of law and order in the face of riots and insurrection has been traditionally a State function and should be continued. Our National Guard has proven over and over again its ability to serve this purpose in an outstanding fashion. It should continue to do so. It should also continue its structure as a Federal force to augment the active Army but there should be established, we believe, at the earliest possible time at least six Army Reserve combat divisions unimpeded by any other mission. These divisions can be called to active duty at once without any deleterious impact upon the Nation's ability to maintain law and order and put down anarchy.

NAVY RESERVE

Last year the Congress increased the strength of the Navy's Selected Reserve by 3,000 to bring its average strength up to 129,000

personnel. This has been accomplished by the Navy and has resulted in a substantial improvement in the readiness of the Navy's Selected Reserve.

This strength level of 129,000 will provide an increase of 15 percent to the active Navy for immediate mobilization. The Army's Selected Reserve strength permits an increase of 44 percent to the active Army. We believe the Army's proportion is much more realistic. The "call up" last year of Naval Reserve aircraft squadrons was a convincing demonstration of a serious personnel shortage. The shortage existed because the overall strength of the Selected Reserve would not permit 100-percent manning of the units. The Navy has corrected this deficiency by manning the "hardware" units at a 100-percent manning level and decreasing the manning levels of the fleet augmentation units proportionately.

Actually, the Selected Reserve will not even fill the M-day requirements which amount to approximately 200,000 officers and men.

With such a thin backup force the Navy relies heavily upon the Ready Reserve pool for enlisted men and for the phased forces component of the Naval Reserve for its officers. These officers drill without pay but perform active duty for training with pay. They are known as category D personnel since they fall into the DOD training category D.

For fiscal year 1969 the Navy requested and the Congress appropriated funds to send 7,300 officers and enlisted men in this category to active duty for training. Somehow or another, although funds were appropriated for these numbers, they were arbitrarily reduced through administrative sources to 2,800.

As a result, the Navy is now operating under a policy of sending personnel in the phased forces program to active duty for training only once every 5 years in the grades of captain and commander.

Mr. Chairman, this simply transcends the ridiculous. To keep up professionally, in these days of rapid technological changes, these officers and men of the phased forces of the Ready Reserve should have active duty for training every year.

The new 1970 budget request for Reserve personnel, Navy keeps these numbers at 2,800.

Mr. Chairman, this is not proper support. This substantially lowers the readiness of the Navy's Ready Reserve.

We urge you to question closely the Defense Department witnesses and the Navy witness and find out who made this cut, and the rationale therefor.

Our conversations with responsible officers in the Navy and in the Defense Department indicate that both believe 6,800 officers and 500 enlisted men is the lowest acceptable figure.

We urge you to use your authority to specify in your report that the RPN appropriation provides funds for category D training for a total of 7,300 personnel for fiscal 1970.

We also recommend that the Selected Reserve average strength of 129,000 be supported in your appropriations.

MARINE CORPS RESERVE

We recommend your approval for the strength figure of 48,000 and funding recommended for the Marine Corps Reserve by the Defense

Department with the exception that it be designated as average strength instead of end strength.

AIR FORCE RESERVE

We are pleased to note the increase in the total authorization for the Selected Reserve of the Air Force Reserve to 50,304. Part of this increase results from modernization of a number of flying units and part from an increased manning percentage for a number of these units.

Notwithstanding, there are some serious losses of experienced air crew and flying support personnel in connection with the conversion of integral (self-supporting unit) into associate units. We would hope that the Air Force will make every effort to maintain these skilled people in the Active Reserve inventory so that they will be available for new programs that will undoubtedly result if there is a scaledown in activity in Southeast Asia, and the inevitable resultant cutback in active force strength.

We also understand that the Air Force, under the leadership of the Chief of Air Force Reserve, is undertaking a complete review of the individual mobilization augmentation (IMA) program.

It is expected this will result in an increase of validated manning requirements which will afford the Air Force the opportunity to use more of the varied and highly developed professional and other skills available in the Air Force Reserve inventory. Again, we hope this will be reflected in an increased request for fiscal year 1971 which we are confident your committee will support.

We would like to bring one more thing to your attention at this time although it would not affect the fiscal year 1970 budget.

Following the principles expressed in the Reserve Forces Bill of Rights and Vitalization Act the Air Force has given its Chief of Air Force Reserve, virtually total responsibility for the management of the Air Force Reserve program. We feel that he should thus control the funds necessary to exercise this responsibility.

Therefore we would hope—and are informed the Air Force agrees with us—that there would be provided a separate Air Force Reserve O. & M. appropriation in fiscal year 1971. Your support of such an action would be of great assistance to the Air Force Reserve.

To reiterate, we support the request for Air Force Reserve funds and urge the funding support of your committee.

SUMMARY

In summary, Mr. Chairman, we would urge that the funding for the Selected Reserve of all components be based on an average, rather than an end strength.

For the Army Selected Reserve we would hope that the committee would urge officials of the Army to begin plans now to develop an Army Selected Reserve with an eventual strength of approximately 400,000 to provide for the reestablishment of the six Army Reserve divisions and the necessary supporting units.

For the Navy Selected Reserve we request your committee to maintain its strength and to increase its funding authority for category D training to 7,300.

The strength and funding for the Marine Corps Reserve is adequate for the coming fiscal year programs.

Funding for the Air Force Selected Reserve of 50,304 and consideration of a separate AF Reserve O. & M. appropriation beginning in fiscal year 1971.

Mr. MAHON. We are pleased to have you gentlemen before us again this year. We have had several weeks of hearings and we have a long way to go before we complete our study of the Defense budget and the Defense program.

Your statement will be before us at the time we give consideration to the action which this committee may take.

Colonel CARLTON. Thank you very much, Mr. Chairman.

Mr. MAHON. The committee will recess until 1 o'clock.

AFTERNOON SESSION

MONDAY, JUNE 9, 1969.

RECOMMENDATIONS OF THE AMERICAN LEGION

WITNESS

JAMES R. WILSON, JR., DIRECTOR, NATIONAL SECURITY COMMISSION

Mr. MAHON. We are pleased to have before us Mr. James R. Wilson, Jr., director of the National Security Commission of the American Legion. Will you please proceed?

Mr. WILSON. Thank you.

Mr. Chairman, gentlemen of this subcommittee; I appreciate this opportunity to present the American Legion's views on the 1970 Defense budget. The positions taken in this statement are based upon mandates adopted by the national convention and national executive committee of our organization of 2,600,000 members.

The majority of the resolutions comprising this statement had their origin in some one of our nearly 17,000 posts. In most instances, those finally adopted were given thorough consideration at the local, State, and National level. This procedure is mentioned in order to dispel any thought that our stands are hastily conceived and considered.

In the interest of the subcommittee's time, I shall not read the full text of the resolutions upon which this testimony is based. Rather, I have listed the number and title of these resolutions, which are appended to my statement and respectfully request the distinguished members to review them as time permits.

261—"Strategic superiority"

162—"National defense of the United States"

15—"Maintenance of superior defenses of United States"

5—"Appropriate response to Communist attacks in Vietnam"

225—"Air-to-air fighter aircraft"

226—"Interceptor aircraft"

228—"Advanced manned strategic aircraft"

229—"Strategic airlift"

558—"Manned orbital laboratory"

560—"Advanced air rescue system"

- 307—"Antiballistic missile system"
- 4—"Deployment of an ABM system"
- 227—"Airmobile division"
- 37—"Military retirement pay"
- 503—"Support legislation for recomputation of pay for retired military personnel"
- 42—"Adequate equipment for all elements of Reserve components"
- 6—"Reserve Officers Training Corps program"
- 369—"U.S. Navy oceanographic program"
- 285—"North Atlantic Treaty Organization"
- 533—"Continued freedom of the seas"

Mr. MAHON. The various resolutions which have been adopted by your organization will be made a part of the record.

Mr. WILSON. Thank you very much, Mr. Chairman.

As veterans who fought and won America's wars over the last half century, we earnestly strive for peace but we recognize the facts of life as they exist in today's world.

Were it not for Vietnam and Communist inspired insurrections the world over, the United States, its dependable allies and the world in general, could begin to relax tensions, reduce defense expenditures and in good faith enter agreements aimed toward a goal of world peace.

Unfortunately, Communist perfidy in the field of international relations, the Soviet Union's recent intrusion into the national affairs of Czechoslovakia and the aid she and Red China render to world insurrection and unrest, make acting on faith alone questionable indeed.

As President Nixon said last week, "if America were to turn its back on the world, a deadening form of peace would settle over this planet—the kind of peace that suffocated freedom in Czechoslovakia."

The American Legion has by national convention expressed its firm belief that the United States has no course other than to remain militarily strong. By this we mean our weapon systems should be kept as modern as American technology can provide in sufficient quantities and at a high state of readiness. We feel it is of the utmost importance that our Nation not allow its strategic retaliatory capability to deteriorate for it is our shield against overt attack.

Secretary of Defense Laird recently stated the case for adequate defense when he said: "We realize that military power by itself is not an adequate prescription for peace. But in today's world it is an indispensable element of a strategy designed to avoid conflict." The American Legion concurs.

On the need to maintain powerful military forces in this present age of peril, the late President John F. Kennedy stated, "in an imperfect world where human folly has been the rule and not the exception, the surest way to bring on the war that can never happen is to sit back and assure ourselves it will not happen."

In the past, this Nation has too often followed the advice of the so-called peacemakers only to discover to its sorrow that weakness invites attack.

Much of the work of the American Legion during its first 50 years has concerned the victims of America's involvement in war. The voices

which shrieked for disarmament then, and weakened our Nation, are rising from every quarter today.

Has history taught us nothing? Are the advocates of social needs blind to the fact that, if this country cannot guarantee its own freedom, it cannot possibly extend freedom and the "good life" to others.

Presently, there is a concerted effort underway to strip this Nation of the type of defense it needs to protect itself and its people in this age of peril. We share the President's opinion that:

"We must rule out unilateral disarmament. In the real world that simply will not work. If we pursue arms control as an end in itself, we will not achieve our end. The adversaries in the world today are not in conflict because they are armed. They are armed because they are in conflict, and have not yet learned peaceful ways to resolve their conflicting national interests."

Later in his address to cadets of the Air Force Academy, the President said: "I believe that defense decisions must be made on the hard realities of the offensive capabilities of our adversaries, and not on our fervent hopes about their intentions * * * we must take risks for peace—but calculated risks, not foolish risks. We shall not trade our defenses for a disarming smile or honeyed words. We are prepared for new initiatives in the control of arms, in the context of other specific moves to reduce tensions around the world."

We firmly support the administration's addition of \$23 million to speed research and development of an advanced manned strategic aircraft as a followon to the overage B-52. To delay longer in placing contracts for AMSA construction, may very well make it unavailable to the Air Force in the mid-1970 when it must replace the B-52 if we are to retain a creditable "mixed force" of bombers and missiles.

We support deployment of the Safeguard system, as our resolutions attest, as the very minimum protection our Nation needs to assure the continued viability of our deterrent capability. If we had our way, we would go much further by protecting not only our weapons, but our cities and our people as well.

The present controversy being waged against Safeguard, in the American Legion's opinion, portends attacks on other minimal defense needs.

These minimal needs should extend to Navy ship replacement, equipping of the reserve forces, an air superiority fighter and interceptor, and, most importantly, an ABM and AMSA.

Contrary to public opinion, the world's foremost peace advocates are not the "flower people" but the veterans who fought and bled in this Nation's wars.

Mr. MAHON. Let us examine that sentence. Contrary to public opinion, the world's foremost peace advocates are not the "flower people" but the veterans who fought and bled in this Nation's wars. This seems to be a statement to the effect that public opinion does not support the position of the American Legion. I don't quite get that sentence.

Mr. WILSON. We did not intend that it should read that way. What we felt was that the flower people profess that they are for peace.

Mr. MAHON. Contrary to what might be represented by some but you say contrary to public opinion.

Mr. WILSON. I see. We will accept any correction on that, Mr. Chairman. It was not our intent to say that the public does not believe we

are for peace, but more often we are labeled war mongers and advocates of more than adequate preparedness. We don't believe we are. We believe we are realistic. Fortunately, their desire for peace in a world where man would build rather than destroy is not deluded by unrealistic idealism. Rather it is buttressed by the facts of life in today's world.

Is this the kind of world in which the precious gift of American liberty can be left to the tender mercies of communism? The American Legion does not think so.

I have been requested by our national rehabilitation commission to make the following statement a part of my presentation to this subcommittee. I would respectfully request that it be given your sincere consideration and support.

The American Legion urges this distinguished committee to authorize the appropriation and expenditure of funds necessary for the construction of a memorial chapel and columbarium in Arlington National Cemetery.

Congress decreed that this cemetery, a national shrine that will remain an area dedicated to those who served in defense of their country, be extended to include 200 acres of ground occupied by the south post of Fort Myer, Va.

The Department of the Army developed a twofold comprehensive plan to carry out this expansion. The first, to prepare each new sector, as it is annexed, at a level of quality consistent with the character of the old cemetery; and the second, to develop the structure of the cemetery as a whole—landscape, roads, buildings, and memorials in a manner that will insure its continued existence as a national shrine and place of pilgrimage.

One of the several major objectives of this plan, the construction of a memorial chapel and columbarium, has been approved by the National Capital Planning Commission and the Commission of Fine Arts.

However, the necessary funds for the construction of the chapel and columbarium have not been included in the 1968, 1969, or 1970 defense appropriations.

One advantage of the columbarium is that it included provision for 26,000 niches which could contain up to two urns bearing the ashes of deceased veterans of our Armed Forces. The Department of Defense order of February 10, 1967, restricting burials in Arlington National Cemetery to certain veterans, will not pertain to the placement of urns in the columbarium. Therefore, Mr. Chairman, the American Legion urges this committee to authorize the appropriation and expenditure of funds necessary to construct the memorial chapel and columbarium. Delay in construction will undoubtedly increase the eventual cost of this project.

The statement on Arlington is appended and I would appreciate to have it included in the record at this point and the committee at its leisure can read the more detailed resolutions which support the statement I just presented.

Mr. MAHON. The resolutions will be made a part of the record.
(The resolutions follow:)

FIFTIETH NATIONAL CONVENTION OF THE AMERICAN LEGION HELD IN NEW ORLEANS, LA., SEPTEMBER 10-12, 1968

Resolution No. 261.

Committee: Aeronautics and Space.

Subject: Strategic superiority.

Whereas there exists the possibility of nuclear war through Soviet initiation, escalation, or miscalculation; and

Whereas reports indicate that within a year the Soviets will have a larger number of ICBM's, in hardened sites, than will the United States; and

Whereas the Soviets are reportedly deploying the "Galosh" anti-ICBM system; and

Whereas U.S. defense officials indicate that the U.S. "Sentinel" system will not defend this country against a heavy Soviet attack, even when and if that system is put into operation; and

Whereas there are some advocate abandonment of American strategic superiority, by proposals which range from failure to provide advance armament for our present strategic forces to the extreme of U.S. unilateral disarmament; and

Whereas previous U.S. defense policy sought to reduce our superior strategic forces to military parity with the U.S.S.R.: Now, therefore, be it

Resolved by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That we hope for a world situation in which disarmament may be achieved safely, but vehemently urge upon our national leadership the maintenance of absolute and unquestionable strategic superiority vis-a-vis potential enemies, both now and at future technological levels; and be it further

Resolved, That keeping such strategic superiority have absolute priority over all other national goals.

Resolution No. 162.

Committee: Naval Affairs.

Subject: National Defense of the United States.

Whereas the world is divided between the Communist and the free nations with totally incompatible ideals and principles; and

Whereas the Communist nations with a combined population of well over a billion have undividedly and collectively declared their determination to destroy the leader of the free nations, the United States of America; and

Whereas the survival of our Nation as a free people depends upon its being sufficiently strong to defend itself against any attack, conventional or nuclear; and

Whereas the blessings of existing in peace and security depends upon our being offensively and sufficiently strong to deter any nation or combination of nations from daring to attack us; and

Whereas such defensive and offensive strength requires superiority on the land, on the sea, over the land, under the sea, in space and in outer space; and

Whereas to accomplish these objectives no nation or nations should be allowed to attain superiority or even parity with us in space, outer space, ballistic or antiballistic systems, or in submarines: Now, therefore, be it

Resolved, by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That we call upon the Federal Government to do all things necessary to make the defenses of our Nation impregnable and its offensive power so awesome that no nation or combination of nations will dare attack us.

NATIONAL EXECUTIVE COMMITTEE MEETING, ST. LOUIS, MO., MAY 8-9, 1969

Resolution No. 15.

Committee: National Security.

Subject: Maintenance of superior defenses of the United States.

Whereas it has been Communist policy since Stalin's day to bleed the United States white, in the Eastern Hemisphere and attack eventually in the Western Hemisphere; and

Whereas some reputable authorities allege that the U.S.S.R. has not moved all, if any, of its atomic missiles from Cuba; and

Whereas the cost of the Vietnam war has made it very tempting to neglect the maintenance of superior defenses of our country, as shown by the present debate against an effective antimissile program; and

Whereas the maintenance of peace depends upon our superior defenses, since the Communists only understand the language of strength and power: Now, therefore, be it

Resolved, by the National Executive Committee of the American Legion in regular meeting assembled in St. Louis, Mo., May 8, 9, 1969, hereby goes on record as favoring the maintenance of superior defenses in space, on the seas, and on land.

NATIONAL EXECUTIVE COMMITTEE MEETING, WASHINGTON, D.C., MARCH 15, 1969

Resolution 5.

Subject: Appropriate response to Communist attacks in Vietnam.

Whereas the President of the United States on March 4, 1969, in a nationwide report to the people of this country on television and radio, in commenting upon the escalation of the war in Vietnam by the Communists in their attacks upon the cities and civilian population of South Vietnam, stated: "We have not moved in a precipitate fashion by the fact that we have shown patience and forbearance should not be considered as a sign of weakness. We will not tolerate a continuance of a violation of an understanding . . . and an appropriate response to these attacks will be made if that continues."

Whereas since that statement by the President, the Communists have continued their attacks upon the South Vietnamese cities and the Paris peace talks after almost a full year's duration have shown no apparent results that would end the war; Now, therefore, be it

Resolved, by the National Executive Committee assembled in special meeting in Washington, D.C. on March 15, 1969, That the American Legion states its firm belief that it is in the interest of peace or a military victory in Vietnam for the Government of the United States to make an "appropriate response" to the Communist attacks.

50TH NATIONAL CONVENTION OF THE AMERICAN LEGION HELD IN NEW ORLEANS, LA.,
SEPTEMBER 10-12, 1968

Resolution No. 225.

Committee: Aeronautics and Space.

Subject: Air-to-air fighter aircraft.

Whereas, the American Legion in its National Convention last year supported the development and procurement of high performance fighter aircraft; and

Whereas the wisdom of this action has been demonstrated in recent months by the clear indications that the Soviets are continuing to push ahead in the area of aeronautical development; and

Whereas the implications of this Soviet emphasis on advanced fighters are compounded by the fact that U.S. fighter aircraft developments have not kept pace with Soviet developments; and

Whereas the recent conflict between Israel and Egypt has clearly demonstrated the need for air superiority if a force is to obtain or maintain superiority on the ground; and

Whereas studies have shown that our technology can provide an advanced fighter aircraft that will be superior in aerial combat to Soviet aircraft; and

Whereas funds have been requested in the Department of Defense Appropriations bill for fiscal year 1969 to permit the Air Force and the Navy to proceed with designs and preliminary work on the avionics and engine for such advanced fighter aircraft; and, Now, therefore, be it

Resolved, by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That the Department of Defense, the administration and the Congress fully support and expedite the development and procurement of superior air-to-air fighter aircraft; and, be it further

Resolved, That the Secretary of Defense be urged not to compromise or otherwise degrade such aircraft in their design or performance through attempts to achieve commonality.

Resolution No. 226.
Committee: Aeronautics and Space.
Subject: Interceptor aircraft.

Whereas the American Legion has for several years supported the development of an improved interceptor which would be capable of destroying enemy bombers before they approach within striking range of target areas within the United States; and

Whereas today there is no aircraft in production meeting the requirements for an interceptor to defend against supersonic bombers; and

Whereas recent testimony before congressional committees supports our view that the existing air defense system would be virtually ineffective against low flying bombers; and

Whereas the Air Force has recently developed a plan designed to achieve a major increase in the effectiveness of our air defense system which plan includes an improved interceptor, an airborne warning and control system (AWACS) and an over-the-horizon radar (OTH); and

Whereas the long endurance aircraft of the AWACS would be capable of quick reaction and rapid deployment to positions beyond our boundaries and the techniques being developed will meet the requirements for the timely direction of interceptors to bomber kill positions; and

Whereas the backscatter radars would have the ability to detect targets at great ranges from our coastlines and thereby deny an enemy the opportunity to gain the advantage of tactical surprise; and

Whereas the Department of Defense requested funds in the fiscal year 1969 budget to begin the modification of F-106 aircraft with a more advanced radar fire-control system and air-to-air missile system; and

Whereas the Senate has denied this request and has not provided funds for an acceptable interceptor aircraft such as the F-12; and

Whereas a failure to provide funds this year for an improved interceptor aircraft will serve to further degrade our already limited air defense capability; and, Now, therefore be it

Resolved, by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That we urge upon the Congress and the administration full support for the earliest possible deployment of an advanced manned interceptor.

Resolution No. 228.
Committee: Aeronautics and space.
Subject: Advanced manned strategic aircraft.

Whereas the American Legion has consistently supported the concept that a mixture of manned bombers and intercontinental missiles should be maintained to provide an adequate strategic deterrent against possible aggression; and

Whereas the announced development of supersonic transports foreshadow the supersonic bomber; and

Whereas the American Legion has supported the development of an advanced bomber as a replacement for the later models of the B-52 bomber fleet; and

Whereas a new aircraft system is urgently needed to replace the aging B-52 and the retired B-47's; and

Whereas currently approved plans will provide only the FB-111 aircraft as a replacement for the early models of B-52 aircraft; and

Whereas analyses have shown that against the higher level of the projected Soviet threat an advanced bomber would be a cost-effective option over the long term compared to maintaining the bomber forces which are now approved; and

Whereas even in a nonnuclear conflict an advanced bomber, by combining high performance with a large payload, could achieve important military results; and

Whereas a manned bomber can carry many more megatons of destructive power than can any ballistic missile; and

Whereas a mixed force of bombers and ballistic missiles offers more security than would either alone, compound the defense problem, and increases the assurance of hitting targets; and

Whereas manned aircraft offer advantages over missiles in mobility, versatility, flexibility, maneuverability, and controllability; and

Whereas there is a continuing need for manned reconnaissance, both strategic and tactical; Now, therefore, be it

Resolved, by The American Legion in National Convention assembled in New Orleans, La, September 10, 11, 12, 1968, That we urge upon the Congress and the administration full support for the earliest possible deployment of an advanced manned strategic aircraft (AMSA).

Resolution No. 229.**Committee: Aeronautics and space.****Subject: Strategic airlift.**

Whereas the ability of the U.S. Armed Forces to respond promptly and decisively, when so ordered, is essential to deterring war or limiting a conflict; and

Whereas sufficient, modern, available strategic airlift is essential for the rapid deployment and support of U.S. Armed Forces, shortening reaction time and increasing combat effectiveness; and

Whereas great progress has been and is being made in improving airlift by the procurement of C-141's and C-5's, the Military Airlift Command; and

Whereas this jet airlift force will require expanded aerial ports of embarkation, with larger cargo and passenger terminals and with advanced materials handling systems; and

Whereas the ability of the C-5 to land on 4,000-foot dirt strips can be fully utilized only by creating an organization of combat engineers to build such strips; Now, therefore, be it

Resolved by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That we urge the administration, the Congress and the Department of Defense, to take action to provide continued improvements in, and sufficient amounts of, strategic airlift to meet the operational needs for support of U.S. Armed Forces.

Resolution No. 558.**Committee: Aeronautics and Space.****Subject: Manned Orbital Laboratory.**

Whereas recent disclosures concerning Soviet space efforts, including the fractional orbiting bombardment (FOB) system, emphasize the need for the United States to pursue its space research efforts as a matter of national emergency; and

Whereas fiscal year 1969 is programed to be one of peak activity for the Manned Orbital Laboratory (MOL) program including test firing, fabrication of hardware, and installation of ground equipment; and

Whereas the MOL vehicle will constitute an operational test bed in which to fully explore the military usefulness of man in the space environment; and

Whereas the Department of the Air Force has requested substantial funds for the MOL project; Now, therefore, be it

Resolved by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That it urge the Congress to continue its support of the Manned Orbital Laboratory program as a matter of urgent concern in the interest of national security.

Resolution 560.**Committee: Aeronautics and Space.****Subject: Advanced air rescue system.**

Whereas the dedicated efforts of the brave men of the Aerospace and Recovery Service has saved the lives of over 650 airmen downed in hostile areas in Southeast Asia by October 1967; and

Whereas their efforts have been essential to the recovery of astronauts after splashdown; and

Whereas their experiences indicate a need for an advanced rescue system (ARS) with a greater capability for the rescue mission than is available with a pure helicopter; Now, therefore, be it

Resolved by the American Legion in National Convention assembled in New Orleans, La., September 10-12, 1968, That we request the earliest possible development and deployment of an Advanced Rescue System.

Resolution No. 307.**Committee: Military Affairs.****Subject: Antiballistic missile system.**

Whereas the American Legion has called upon Congress and the executive department of the Federal Government to assign a high priority for the development and deployment of an antiballistic missile system, which would give the United States a strong deterrent toward any aggressive nation, and hence, enthusiastically applauds our Government's recent decision to employ a thin antiballistic missile system known as Sentinel, capable of giving limited protection against the nuclear threat of Communist countries; and

Whereas the American Legion is convinced that the Communist goal is not military parity, but superiority; and

Whereas, Russia is at present deploying new weapons, such as the fractional orbiting bomb (FOB), multiple independent reentry vehicles (MIRV), improved antiballistic missile systems (ABM), and is increasing also its land and sea forces of intercontinental ballistic missiles (ICBM); and

Whereas these alarming changes in the overall strategic power between the United States, and the Soviet Union, could cause a serious imbalance within the defense capabilities of the free world and those of the forces of communism, making it mandatory that our present Sentinel system be improved and expanded: Now, therefore, be it

Resolved, by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That they recognize that a broad margin of superiority must be maintained by the free world until peace is assured and urges the President, and Congress to take action in expediting the authorization of the necessary funds for the continued advance research, development and ultimate deployment of an improved and expanded antiballistic missile system.

NATIONAL EXECUTIVE COMMITTEE MEETING, WASHINGTON, D.C., MARCH, 15, 1969

Resolution No. 4.

Subject: Deployment of an antiballistic missile system.

Whereas the American Legion for several years has urged the deployment of an antiballistic missile system as necessary to the defense of the United States against hostile nuclear attack; and

Whereas this position was strongly affirmed in a resolution unanimously adopted at its national convention in New Orleans in September 1968: Now, therefore, be it

Resolved, by the national executive committee of the American Legion assembled in special meeting in Washington, D.C., on March 15, 1969, That we commend and pledge our support to the President in his wise decision for the deployment of a modified antiballistic missile system which in his own words is "vital for the security and defense of the United States and also in the interest of peace throughout the world."

50TH NATIONAL CONVENTION OF THE AMERICAN LEGION, HELD IN NEW ORLEANS, LA., SEPTEMBER 10-12, 1968

Resolution No. 227.

Committee: Military Affairs.

Subject: Airmobile division.

Whereas the measure of success of battlefield mobility is the ability of the fighting man to maneuver and deliver fire under any conditions against the adversities of terrain, weather, and the enemy; and

Whereas mobility increases the opportunity for surprise and reduces friendly vulnerability to enemy fire; and

Whereas in Vietnam the helicopter has proved increased mobility and helped achieve great success for the Army forces under difficult conditions; and

Whereas the airmobile division with its increased number of aircraft has proven its superiority by exploiting mobility to gain surprise against enemy attempts to mass as well as employing this same aerial mobility to cross terrain obstacles and disrupt enemy formations by operating in his rear: Now, therefore, be it

Resolved by The American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That the administration, the Congress, and the Department of Defense expand the airmobile division program to insure a steadily improving mobility differential over any potential enemy.

Resolution No. 37.

Committee: Military Affairs.

Subject: Military retirement pay.

Whereas many servicemen and women of the various armed services have maintained an active status in a Reserve component since World War II and/or the Korean conflict; and

Whereas these servicemen and women by their longevity now hold the majority of senior billets in the Reserve components of the armed services; and

Whereas by the presence of these servicemen and women in the billets of the Reserve components, younger men and women are unable to join Reserve components or advance to higher ranks or ratings for lack of billets in the Reserve components of the Armed Forces; and

Whereas many of these senior servicemen and women are reluctant to voluntarily transfer to the Retired Reserve under title 10, United States Code, sections 1376a and 274 as no retirement pay will be received until reaching age 60 in accord with title 10, United States Code, section 1331; and

Whereas the Congress did modify existing laws to the extent that Federal employees may now retire from the Federal Service at age 55: Now, therefore, be it

Resolved by The American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That the existing law title 10, United States Code section 1331 formerly title 111 Public Law 810, 80th Congress as amended, be amended so that servicemen and women may be eligible upon application to receive retirement pay upon or after reaching age 55 in lieu of the present 60; and be it further

Resolved, That the various service organizations such as the National Guard Association, the Retired Officers Association, the National Naval Reserve Enlisted Association, et cetera, be requested to assist with having this change enacted.

Resolution No. 503.

Committee: Military Affairs.

Subject: Support legislation for recomputation of pay for retired military personnel.

Whereas the disparity in the retirement pay of members of the Armed Forces retired prior to the periodical pay increases authorized for active duty members with a consequent computation of retirement pay for military personnel retired subsequently to such increases in pay; and

Whereas this inequitable method of retirement pay computation violates a principle in effect for more than 100 years of computing retirement pay for the Armed Forces for all retired military personnel regardless of the date of retirement with the current pay scale of military personnel on active duty; and

Whereas as the buying power of the dollar decreases, the economic and living standards of retired military personnel decline because of the unjust methods now in force for the inequitable computation of retirement pay which admittedly broaden the living standards gap between groups of retirees with equal year of active service and equal rank; and

Whereas the so-called cost-of-living increases in the retirement pay of military personnel falls by a wide margin to compensate for the inequitable method of retirement pay compensation now in effect; and

Whereas to continue the current method of computing retirement pay for military pay often results in the loss of the services of our finest military personnel at an early age who enter civilian employment where the retirement rates of compensation are greater and nondiscriminatory: Now, therefore, be it

Resolved, by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That the Congress of the United States enact legislation during the second session, 90th Congress, which will provide that retirement pay for the Armed Forces of the United States be equalized and computed on the traditional basis of the current pay scale for military personnel on active duty, of like grade and length of service; and further that such equalized, military retirement pay include that for all military personnel now and in the future retired.

NATIONAL EXECUTIVE COMMITTEE MEETING

St. Louis, Mo.

MAY 8-9, 1969

Resolution No. 42.

Committee: National Security.

Subject: Adequate equipment for all elements of the Reserve components.

Whereas repeated equipment withdrawals to meet urgent requirements related to the conflict in Vietnam have so depleted the inventories of the Reserve

components of the Army that meaningful training has been rendered extremely difficult in many units; and

Whereas shortages of certain critical items, mainly in the vehicle and communications field, have been persistent and continuous for the past many years that their scarcity cannot be attributed to the current requirement of force buildup; and

Whereas the lack of suitable necessary equipment, designed for the modern battlefield employment, has long compelled the use of inaccurately labeled "substitute items," which are so unlike their modern counterparts that they do not in reality provide a suitable replacement for either training or operational use; and

Whereas much of the efforts of the Reserve components to attain a high level of "combat readiness" are futile and wasteful unless provided with the types of quantities of equipment which will support and substantiate their readiness posture in support of the active forces: Now, therefore, be it

Resolved by the National Executive Committee of the American Legion in regular meeting assembled in St. Louis, Mo., on May 8-9, 1969, That the American Legion go on record as supporting a workable program for the assurance of provisions of necessary and adequate equipment for all elements of the Reserve components.

NATIONAL EXECUTIVE COMMITTEE MEETING, WASHINGTON, D.C., MARCH 15, 1969

Resolution 6.

Subject: Reserve Officers Training Corps program.

Whereas, there are more than 300 institutions of higher education with Army, Navy, and Air Force ROTC programs in which there are more than 270,000 students enrolled; and

Whereas, there is a waiting list of institutions of higher learning which have applied for authorization to establish ROTC programs; and

Whereas, each of such institutions of higher learning has the option to require that the first 2 years be compulsory or voluntary, and whether or not academic credit, and the amount thereof, is given for participation in such programs; and

Whereas, the academic validity of this training is the equal of any technical curriculum requiring comparable hours of the participant's time each week, has valuable patriotic citizenship and civic motivation; and

Whereas, the actual time required for ROTC makes it difficult for each participant to take full advantage of the elective courses offered; and

Whereas, the Army receives 50 percent of its officers, the Navy 35 percent, and the Air Force 30 percent, through ROTC programs; and

Whereas, there is at present such a shortage of junior officers in the regular Army as to require the extension of the tours of duty of many regular and reserve officers called to active duty; now, therefore, be it

Resolved by the National Executive Committee of the American Legion assembled in Washington, D.C., March 15, 1969, That institutions of higher learning upgrade all ROTC programs and encourage participation in them by giving appropriate academic credit and by declaring that each participant may select military science as a minor area of concentration, should a minor be prerequisite to graduation and that the Defense Department give preference in establishing new ROTC programs to those institutions agreeing to make the first 2 years compulsory, giving appropriate academic credit for participation, and allowing each such participant to select military science as his minor area of concentration, should a minor be prerequisite to graduation.

50TH NATIONAL CONVENTION OF THE AMERICAN LEGION HELD IN NEW ORLEANS, LA., SEPTEMBER 10-12, 1968

Resolution No. 369.

Committee: Naval Affairs.

Subject: U.S. Navy oceanographic program.

Whereas, the oceans have been of strategic importance since the dawn of history and are becoming of increasing interest as the Navy's operating environment and as food and mineral sources; and

Whereas, the oceans belong to no one nation and are a great resource to be shared by all mankind; and

Whereas, Russia has a vigorous and substantial oceanographic program which is marked by increased research activities through the world, and ever increasing capabilities; and

Whereas, there is only one first-rate oceanographic fleet in the world, that of the Soviet Union; and

Whereas, it is considered most essential to our national security and economic interests to sponsor substantial oceanographic programs at ever increasing rates; and

Whereas, it is highly desirable for any U.S. Navy oceanographic survey and research ship to have unlimited range and staying power (as well as adequate research and support facilities) while conducting a scientific expedition; and

Whereas, nuclear propulsion will provide this staying power; and

Whereas, nuclear propulsion is in the last analysis cost comparative; now, therefore, be it

Resolved, by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That we urge strong support of:

1. Nuclearization of all U.S. Navy oceanographic survey ships; and
2. An increase in all oceanographic efforts of the U.S. Navy.

Resolution No. 285.

Committee: Naval Affairs.

Subject: North Atlantic Treaty Organization.

Whereas the economic problems posed by the deficit in the U.S. balance of payments has led to proposals by Members of Congress and others that the U.S. military commitment to NATO be reduced by removing American troops and air units from Europe; and

Whereas such proposals and resultant actions seem to give more importance to a temporary economic situation than to the realities of military necessity in a difficult world situation; and

Whereas the failure of some members of NATO to make and maintain adequate military commitments of their own makes more, rather than less, necessary the level of American commitment to NATO military might; and

Whereas the major area of confrontation between the Communist and free worlds is still divided Europe, even in view of the major war in Southeast Asia: Now, therefore, be it.

Resolved, by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That we support the full retention of the United States' commitment to the military forces of the North Atlantic Treaty Organization, in order that no adversary will be led to mistake our firm determination to defend the freedom and territory of our allies in NATO.

Resolution No. 533.

Committee: Naval Affairs.

Subject: Continued freedom of the seas.

Whereas the American Legion recognizes the necessity of a strong Navy and Marine Corps team in order to assure freedom of the seas; and

Whereas adequate strength and flexibility of Naval and Marine Corps forces can only be achieved by strong national support at all political, economic and social levels; and

Whereas the American Legion recognizes the threat presented by the rapidly growing Communist naval forces to the continued freedom of the seas; and

Whereas the American Legion recognizes that this freedom and our national survival is being challenged by the rapidly growing naval forces of the Soviet Union and other Communist bloc nations: Now, therefore, be it

Resolved, by the American Legion in National Convention assembled in New Orleans, La., September 10, 11, 12, 1968, That it strongly urge the Congress to make available, and the Secretary of Defense to provide the adequate funds to:

1. Assure a naval construction program of sufficient size and scope to forestall obsolescence of the fleet, provide modern and capable naval forces sufficient to insure that our Navy can successfully accomplish its assigned missions and tasks over the total spectrum of war and peace, and enable the U.S. Navy at all times to control the seas throughout the world for the protection of the interests of the United States of America, foreign policy and economic lifelines of the free world against Communist aggression or subversion.

2. To continue the Navy research and development program in expanding fields of science and technology for application, not only to the vitally important areas of oceanography and antisubmarine warfare, but to the end that Naval

and Marine Corps forces be provided with mobility, versatility, and flexibility in ships and weapons to the highest degree.

3. Provide personnel support and training facilities adequate to the purpose of maintaining a high degree of readiness, morale, and effectiveness.

4. Provide the weapon systems to enable the U.S. Navy and Marine Corps to accomplish their mission in both conventional and nuclear warfare.

5. Provide and permanently maintain a modern balanced amphibious assault force with a capability of projecting ashore simultaneously the assault elements of two (2) U.S. Marine Corps division wing teams.

6. Provide sealift facilities where necessary, including fast deployment logistics (FDL) ships, to support the U.S. Army, U.S. Air Force, and U.S. Marine Corps operations, which may be necessary to accomplish our national objectives.

7. Meet the needs of the U.S. Navy in shipbuilding and repair facilities in appropriate balance between public and private Atlantic, Pacific, and other continental shipyards.

8. Maintain strong Naval and Marine Corps Reserve Forces and supply them with adequate ships, planes, and equipment necessary to assure effective readiness of the Naval and Marine Corps Reserve Components for active duty whenever required in support of our national interests.

NATIONAL EXECUTIVE COMMITTEE MEETING OF THE AMERICAN LEGION,
OCT. 16-17, 1968

Resolution No. 28.

Commission: Rehabilitation.

Subject: Sponsor and support legislation to appropriate and authorize expenditure of funds for the construction of a memorial chapel and columbarium in Arlington National Cemetery

Whereas the American Legion recognizes that Arlington National Cemetery is a national shrine and that it will remain for all time an area dedicated to those who have served in defense of their country; and

Whereas the Congress of the United States decreed that Arlington National Cemetery be extended to include the grounds of the South Post of Fort Meyer, Va.; and

Whereas the Department of the Army developed a twofold comprehensive plan: the first, to prepare each new sector of land as it is annexed to the cemetery at a level of quality consistent with the character of the old cemetery; and the second, to develop the structure of the cemetery as a whole—landscape, roads, buildings, and memorials—in a manner that will insure its continued existence as a national shrine and place of pilgrimage; and

Whereas one of the several major construction objectives of the comprehensive plan was the construction of a memorial chapel and columbarium; and

Whereas the objective of the comprehensive plan—including the construction of the memorial chapel and columbarium—was approved by the National Capital Planning Commission and the Commission of Fine Arts; and

Whereas the Department of Defense budget for fiscal years 1969 and 1970 do not appropriate funds for the construction of the memorial chapel and columbarium; and

Whereas preliminary plans for the columbarium include the provision of approximately 20,000 niches which could contain up to two urns bearing the ashes of deceased veterans of our Armed Forces; and

Whereas it is indicated that the restrictive criteria of February 10, 1967, for burial in Arlington National Cemetery would not pertain to the placement of urns in the columbarium: Now, therefore, be it

Resolved, by the National Executive Committee of the American Legion in regular meeting assembled in Indianapolis, Ind., October 16-17, 1968, That the American Legion shall sponsor and support legislation to authorize an appropriation of funds for the construction of the memorial chapel and columbarium in Arlington National Cemetery as approved for the comprehensive plan by the National Capital Planning Commission and the Commission of Fine Arts.

Mr. MAHON. You gentlemen represent a very important organization, especially in the area of stability and defense. Would you agree that there is a growing disposition on the part of many to say that we

ought to fix priorities and that in fixing priorities there are probably several things that ought to take priority over national survival?

Mr. WILSON. I agree.

Mr. MAHON. I personally have the feeling that survival is first. Other things are relatively unimportant unless the Nation survives. I think we must agree that there is a changed atmosphere in the country, at least to some limited extent. It is difficult to say how far it has gone.

Has the Legion detected this?

Mr. WILSON. We have. I believe it is evident in the effort we are making now to make our position on ABM known to our people in the field and to have them respond to Members of Congress just where they stand on ABM. We detect that if the people who are against defense would have their way we would not have any defense at all. That seems to be growing rather than diminishing. This is evident on every side. If they are successful in ABM, where do they move from there?

Mr. MAHON. Mr. Lipscomb.

Mr. LIPSCOMB. I have no questions.

Mr. MAHON. Mr. Evans.

Mr. EVANS. I have just one question, Mr. Chairman. Are you saying that those who would be against the deployment of an adequate ballistic missile would also, if successful there, seek another military project and another military project?

Mr. WILSON. I wouldn't say all of them, sir. I would say there are those among the opponents of ABM who, if they succeed in either having ABM rejected or fail to deploy the system, that they would then logically move to the next major weapon system.

Mr. EVANS. Why do you say this?

Mr. WILSON. I think this is pretty well established fact among those who are the principal opponents of adequate preparedness. I am not speaking of the Members of the Senate and House of Representatives. I am speaking of organizations like SDS. They would not be happy until you completely dismantled the Defense Department.

Mr. EVANS. You do not state that the SDS represents a large or important segment of public opinion?

Mr. WILSON. No, but they get good headlines. In numbers they do not represent a sizable group. Just take ROTC for example, in a lot of colleges and universities they have ROTC on the run and they do not represent in some cases 1 percent of your student body. Yet they have so cowed the faculty and the presidents of a lot of these universities where ROTC is in very serious jeopardy today.

Mr. EVANS. Is it the belief of the American Legion that there is a large and serious group in the country that would have us disarm ourselves?

Mr. WILSON. I think so. I just think those people who are about the serious business of making it difficult for this Nation to retain its strategic deterrent capability are succeeding quite a bit in clogging the whole machinery of defense, including selective service, our recruiters for industry on the campus. I can name you a dozen different things that these people have succeeded in doing, and I just feel it is all intended to impede our ability to protect ourselves.

Mr. EVANS. I have no further questions.

Mr. MAHON. Thank you very much. We appreciate having your views.

Mr. WILSON. It is a real pleasure, Mr. Chairman.

OVERSEAS DEPENDENTS' EDUCATION

WITNESS

MRS. EDWARD F. RYAN, CHAIRMAN, NATIONAL CONGRESS OF PARENTS AND TEACHERS ASSOCIATION, COMMITTEE ON LEGISLATION

Mr. MAHON. Our next witness is Mrs. Edward F. Ryan. We are pleased to have you before us again.

Mrs. RYAN. Thank you, sir. I am very pleased to be here.

We would first like to express our very deep appreciation of the recommendations of this committee for last year's budget for the overseas dependents schools, and the budget that was later enacted by the Congress. The schools were thereby enabled to fulfill a longtime desire for kindergarten in all schools, also education for the handicapped was improved, and the funds served also to reduce the student teacher ratio somewhat nearer to the standard of 25 to 1. These are very important steps for achieving the mission of the overseas schools. We would also like to take this opportunity to commend the dependents schools for the effective use of appropriated funds. I would like to point out that the preparation of the teachers in the European schools, for instance, shows a larger proportion of bachelor degrees than the average in the stateside schools.

On scholastic aptitude tests, the high school senior students who later entered college show a substantially higher average score in both the verbal and the math tests.

The improvement that was instituted several years ago in the textbook program has continued, whereas 3 years ago, 62 percent of the basic texts in use were at least 7 years old, and many even older, this year only 15 percent of the texts were published more than 6 years ago. These were all substantial steps forward and it should be pointed out that they were achieved at a per pupil expenditure substantially less than the national average here.

The U.S. Office of Education published this year's average as \$657 per pupil, \$50 more than the per pupil costs for DOD schools. This year's proposals are modest, but we hope very much that they will receive your favorable consideration because they will support better education for the entire body of students. Included in the requested \$135.4 million is provision for additional teachers—enough, it is hoped, to bring the teacher-student ratio at last to that mark of 1 to 25. This makes a great deal of difference in the flexibility of curriculum that can be offered the body of students. Since this year's stateside national average is 1 to 23.1, we hope very much that this may be granted. The budget includes also an increase in the capability for elementary guidance, which is very important in increasing the effectiveness of the teachers, and also it is proposed that paraprofessional classroom assistance be provided to teachers. This means that the school dollars invested in professional staff can be concentrated in professional activity. Finally, a provision is included for school health education program of proper standard. This is a provision which our European PTA's have greatly desired for very many years. We hope very much it meets with your approval.

We should like to speak also to two major problems of the overseas schools in the hope that steps might be taken this year toward solutions.

Mr. Chairman, would you allow me to interrupt at this point to go back to my first point, which was that we are very grateful for the recommendations which this committee made last year for the overseas schools funding recommendations that were later enacted. The two items which are not in-depth requests but which we would like to bring to your consideration for steps as you are able to take them are these: One is the desirability of advance funding which the Congress has now undertaken for other educational programs. It would be particularly helpful for the dependent schools. For instance, the supplies necessary in the classrooms at the opening of school next September must have been funded last January 1, because it takes that long to process the orders and get them delivered. Then the commitments for teacher employment as well as equipment supplies are necessarily made in the spring. They have already been made on the basis of projected student enrollments during the following year.

But this is the main point. Troop movements sometimes change these enrollments by several thousand students during a year; I think as many as 7,000 students in the European area this past year. Even though the final average daily membership is close to the projection, as it is each year, adjustments need to be made during the year with each change in enrollment to meet the ratio requirements. Some costs involved become fixed so that other changes must be made which often react adversely upon the educational program so that the children sometimes suffer. We have even had in PTA indignant letters from students who objected to losing a desirable program in order to meet a space requirement. We would therefore support the administration of the dependent schools in urging that a firm budget for their operation be established at least a year in advance of a given school year which could be used for major operational planning. The other major concern is still school facilities.

As the committee knows, there are a number of excellent buildings in use, but they fall well short of serving all the dependent schools. In the European area 55 percent of the classrooms in use are classified as standard; 25 percent as substandard, and 20 percent as critically deficient, which means inadequate in floorspace, heating, ventilation, or other health and safety factors. These inadequacies also mean substandard education because they prevent the development of instructional programs which serve children in standard classrooms. The overseas commands are concerned with these problems, but as you know, their approval authority is limited to projects of less than \$25,000. Larger projects are needed, but we are informed that the Army schools have had no major school construction projects approved since 1960, and in the last submission of major Air Force projects no school project was approved.

We understand quite well that in a military mission other construction projects will take precedence over schools. Thus we would urge either that a portion of the defense construction budget be earmarked for dependents schools, or that separate procedures be developed to remove the schools from direct competition with military projects. We greatly appreciate your concern for these schools and appreciate very much the privilege of speaking on behalf of the parents and teachers of

the European Association of the American Parents and Teachers, as well as the more the 10 million parents and teachers of the national PTA.

Mr. MAHON. Thank you very much.

Mrs. RYAN. Thank you, Mr. Chairman.

SIZE OF THE DEFENSE BUDGET

Witness

Seymour Melman, Department of Industrial and Management Engineering, Columbia University, on behalf of SANE

Mr. MAHON. Our next witness is Professor Melman.

Will you proceed, Dr. Melman?

Mr. MELMAN. I have the honor to appear before this committee today as the spokesman for SANE, the national peace organization.

Mr. MAHON. Those letters meaning?

Mr. MELMAN. They mean exactly what they say, sane. Formerly National Committee for a Sane Nuclear Policy.

Seated at my left is Mr. Stanford Gottlieb, the national director of SANE. I am professionally a professor of industrial engineering at Columbia University, but I do not speak for my university or any part thereof appearing here today.

Mr. MAHON. Perhaps no one speaks for your university, Mr. Melman?

Mr. MELMAN. It is part of the strength of a great university, sir, that there is strength in diversity.

My credentials in appearing here include the writing or editing of seven books on military and related matters and numerous articles in these fields that have appeared in an array of journals ranging from military to political periodicals. My present statement is based on three basic understandings: One, that from about 1961 to the present time, the Armed Forces of the United States have been designed to operate three wars at once: one, a war in the NATO area; second, a war in the China area; third, a lesser military action in Latin America.

I find such goals for the design of U.S. Armed Forces as contrary to the security of the United States. My second underpinning proposition is that neither a person nor a community can be destroyed more than once, that no advance has been made in the ability to kill people more than once, and such a breakthrough is not likely in any predictable future. Hence the construction and the operation of forces whose justification rests on that assumption, on the ability to destroy more than once, is an irrational and unseemly thing and should not be pursued. It should be curtailed. My third reason for being here is the understanding that a military budget in the order of magnitude of \$80 million as is proposed for fiscal 1970, taking into account the requested appropriations of the DOD as amended by the Secretary a short time ago, as well as the relevant part of the Atomic Energy Commission budget, is an allotment of the national Treasury which reduces the security of American society.

We propose instead that the security of the United States should be based on a design of Armed Forces to serve three objectives: One, the operation of a strategic deterrence force; two, guarding the shores

of the United States; and three, capability for participation in international peacekeeping operations.

I have scrutinized as best I can the published documents concerning the proposed military budget as they appear in the budget, as they appear in the appendix of the budget, as they appear in the statement of the Secretary, and as these items are amplified in certain other documents and statements. On the basis of this examination, I find that these three purposes for the security of the United States would be well served in thoroughgoing fashion by the operation of an armed force of the order of magnitude of 2,300,000 men, and by the operation of that armed force with material made feasible by a reduction in the proposed budgets of the Department of Defense and the AEC by \$54 billion.

The detailing of proposed budget reductions is given with close appreciation of the risk of error owing to under and overestimation when such an exercise is attempted by any outsider who is not privy to the detailed accounts of the Department of Defense and the other relevant agencies. We are also mindful of the possibility of overlapping in certain categories of proposed reduction. I am quite certain, however, that detailed scrutiny of these proposed items with the benefit of the detailed data available on call certainly from this committee will not alter the basic order of magnitude of what is proposed here. These reductions fall in the following categories. On the second page I begin an itemization. Item A, a reduction equal to the approximate incremental cost of the Vietnam war. I base that estimate of \$20 billion incremental cost as including the outlays for material, services and the like, not including the personnel costs of the U.S. Armed Forces involved.

This is an estimate that is based on materials that were in part prepared and presented to this committee a year ago as somewhat modified through various estimates prepared in the Department of Defense, which indicates an incremental cost of the Vietnam war as of fiscal 1969 on the order of magnitude of \$28 billion. There is a second class of reductions—pardon me, may I first amplify on the importance of this first one. I note here that Congress should reduce the budget of the Department of Defense by this amount as an instruction to the Department and to the President to terminate this war. It is within the bounds of the constitutional obligation of the Congress, and hence of this committee, to contemplate such an act.

There is a second class of reductions and these are reducing additions to strategic overkill forces.

Gentlemen, 6 years ago I appeared before this committee and presented a statement on May 17, 1963, in which I called attention to the then existent magnitude of strategic overkill forces, pointing out that allowing for 50 percent failure of vehicles, that the U.S. overkill capability over the Soviet population industrial system was 1,250 times over. Subsequent analyses indicated that allowing for a calculated 90 percent loss of missiles through all causes, and loss of bombers, that the subsequent overkill factor was 231 times. I submit that from 1963 to the present date that has not reduced. If anything, that factor has enlarged. I respectfully submit to this committee copies of the testimony then presented and the supporting document called

"A Strategy for American Security, an Alternative to 1964 Military Budget."

(Clerk's Note: The information was submitted to the committee. The material referred to appears on pp. 891 thru 910 of Pt. 6 of the hearings on the defense appropriations bill for 1964.)

I propose to you that the considerations that were relevant at that time are relevant to the present day.

On these grounds I propose the following reductions in the budget of the Department of Defense and the AEC. One, a cutoff in nuclear weapons production on the ground that there are tens of thousands of such warheads apparently ample to meet all conceivable requirements. That is a reduction of \$1,518 million. Second, a reduction in the R. & D. budget. There the figures is given as a large and a round number, that owing to the fact that no detail is given in the materials of the budget as to the composition of the purpose of the R. & D. activity. It appears, however, that the largest part of it is devoted to research and development on new strategic systems which comprise overkill systems. Third, a reduction is proposed in the Poseidon and Minuteman III programs, again on the grounds that these are additions to overkill forces and are, hence, irrationally pursued.

Fourth, on the same reasoning, the ABM system proposals should be cut. Fifth, the chemical and biological budgets again represent another series of overkill weaponry. These should be cut.

I am advised by a Washington journalist, Mr. Seymour Hirsch, who has inquired into these matters during the last period that the available figure of \$350 million for chemical and biological warfare is probably a gross understatement. The figure is probably closer to \$680 million. That is not known in any official published document.

On the same ground the advanced manned strategic program should be cut. On the same ground the bomber defense system operation, which apparently is a defense system against a nonexistent offensive force, should be cut. Men who have served even the Department of Defense have called attention to the inefficiency of various surface-to-air missiles and these are recommended for a cut of \$850 million as item 8.

Item 9, the Manned Orbiting Laboratory proposal, that is an Air Force venture which on the scientific side infringes on NASA's task, and would comprise an addition to an overkill system insofar as it added to nuclear other delivery. That should be cut. There is a third class of reductions proposed here. And that is reductions of what I call conventional war overkill. A close reading of the statement, of the section of defense during the last 5 years discloses that the DOD has been preparing for not simply one Vietnam war but for a program of such military engagements. The annual statements of the Secretary of Defense have at various times enumerated probable places of such engagements. I hold that it is not in the interest of security of the United States to propose and to prepare to operate such wars. Hence, a series of reductions in the budgets are proposed in honor of terminating that capability. The first item is the Vietnam war manpower, that being approximately 639,000 soldiers, sailors, airmen. Hence the amount approximately representing the cost of their operation, \$6,390 million. Then there are a series of reductions that are given on pages 4 and 5 of the enclosed statement, all rep-

resenting particulars of budget reductions, justified in separate ways, but having the common feature of being functionally part of the preparation for a series of Vietnam-type wars.

I believe it is a prime obligation of the U.S. Congress to place a check on the executive in the performance of such activity and to do that by removing from the executive the capability of pursuing such military operations. This is a series of items of large magnitude. They refer to surplus military manpower, \$4,200 million; to tactical aircraft programs of \$1,078 million; to improving efficiency—not reducing the number, just improving efficiency—in the operation of carrier task forces, allowing for a reduction of \$360 million; eliminating certain types of carrier forces because of proven technical inefficiency, \$400 million. A reduction of amphibious forces and the deletion of the money to do the fast deployment of logistics vessels. The same for the C-5A jet. May I underscore those two? The only discussion that has ever appeared in public concerning these devices, the C-5A aircraft and the fast deployment logistics vessels, is consistent with the understanding that these are designed to rendezvous troops and heavy materials at diverse places around the world in honor of being able to carry out swift wars of intervention at a speed and pace and intensity hitherto never contemplated. The Congress should not give such capability the hands of the executive. We propose a reduction of the military assistance program for grounds that have been amply elaborated in many places. That amounts to \$610 million.

We propose that new naval ship construction detailed in the budget document for 1970 as \$2,400 million should not be pursued, but to go beyond a naval force of 347 vessels now in being is to build up overkill capability on both the strategic side and on the conventional war side.

There follow items enumerated 10, 11, and 12, and the other items on page 5 of my memorandum, a series of reductions based on economies in training, improved buying procedures in the Department of Defense, on diminishing the U.S. forces in NATO; on scoring economies in military construction and holding back the F-14 aircraft program. May I underscore the latter item? The issue is not whether this is a good plane or not. The issue is not whether the contractor is a good constructor of aircraft. The issue is whether these carriers are necessary and what are they necessary for precisely.

What security purpose of the United States requires 15 carrier task forces? The only security purpose, the only military purpose that indicates such a requirement is the three wars at once requirement, which has lately come to public attention.

For all these grounds, gentlemen, we make bold to propose to this committee and to the Congress that they give earnest consideration, both separately and jointly, to these matters in reducing the budgets of the Department of Defense by the order of magnitude of \$54,794 million. We justify these on the following common grounds:

1. Present forces are more than sufficient to serve as a competent security force for the United States.

2. The Congress should stop the Armed Forces from adding to overkill.

3. The Congress should stop preparation for more Vietnam wars.

4. No conceivable Armed Forces can do more than help secure the United States in a military sense. Defense, as a literal shield, is no

longer purchasable. The Joint Chiefs do not promise to defend the United States in the sense of shielding it, for they cannot do it. Neither can they promise a nuclear victory, for that no longer has human meaning since destruction is guaranteed in the event of entry into nuclear war.

5. We believe Congress, through these reductions, can make available a large fund for lifesaving purposes in this country.

6. We believe that only by these means can the American people cope constructively with the Nation's massive problems of economic development at home and forestall the dread prospect of racial confrontation and a mass violence that might attend it in this land.

We believe that the Congress is competent to act swiftly in this respect because such savings could be translated readily into tax reductions. The States and the cities have capability for picking up this taxing power. My own city of New York pays \$20 billion in taxes to the Federal Government and receives in return \$1 billion. A major reduction in the budgets of the Department of Defense in honor of a reasonable security perspective for the United States would make it possible for New York City to obtain all the necessary funds that are so desperately needed for doing what is required for the children and the adults of New York City.

This committee is the key committee of the Congress. Therefore, I respectfully pray that you give the closest attention to these proposals.

Lastly, I am aware, as I certainly hope you are, of the human and institutional features that are involved in all these considerations. I am not simply talking about money here.

We are talking about organizations of men and their habitual modes of behavior. We have the estimate that the men who have constructed a policy that led into and has operated the Vietnam-type war should not be autonomously trusted with the security of the United States; that a check should be placed on their activities.

We have prepared an illustration which in a somewhat colorful way gives the sense of what we mean by this human factor. This was a chart that appeared in various newspapers and some of you may have seen it.

May I place in your record the text that accompanied that illustration because it is a text that speaks to various of the considerations that I have spoken to here today. I will be more than pleased to be responsive to queries from the members of this committee.

Mr. MAHON. Thank you very much, Dr. Melman, for your appearance before the committee. We will give all these matters appropriate attention and consideration.

APPROPRIATION REQUEST FOR VIETNAM WAR

WITNESSES

J. SINCLAIR ARMSTRONG, REPRESENTING BUSINESS EXECUTIVES MOVE FOR VIETNAM PEACE

Mr. MAHON. Now we have before us at this time Mr. J. Sinclair Armstrong. You are appearing here not in your former capacity as Assistant Secretary of the Navy, but as the representative of Business Executives Move for Vietnam Peace; is that correct?

Mr. ARMSTRONG. Yes, sir, Mr. Chairman.

I am very honored to be here, and I thank you for letting me speak today. I have caused to be distributed to you a four-page statement. (The statement follows:)

BUSINESS EXECUTIVES MOVE FOR VIETNAM PEACE

Business Executives Move for Vietnam Peace is an organization of 2,500 owners and executives of American business corporations in 49 States who seek by open and lawful means to bring about an end to U.S. participation in the war in Vietnam.

My own credentials to address you are not impressive compared to those of any of the Military Sponsors of Business Executives Move for Vietnam Peace. However, I do come here with a background of service in the Naval Reserve in World War II and as Assistant Secretary of the Navy during 2 years of the Eisenhower administration. I am a life member of the Navy League of the United States and a member of the Advisory Council of its New York Chapter.

My business experience has been in law and finance, and includes 4 years as a member of the Securities and Exchange Commission (two as its chairman), also under President Eisenhower, and 10 years in my present position as an executive vice president of the United States Trust Co. of New York (whose official views I do not purport to speak for on this occasion).

OUR POSITION AGAINST THE VIETNAM WAR

We conceive that war to be a material and moral disaster for the United States, and our participation in it to be contrary to our country's economic and strategic interests.

From the moral point of view, the killing and wounding of hundreds of thousands of human beings in a tiny country on the other side of the globe that could not possibly endanger the security of the United States weighs on our national conscience. The losses of our own precious fighting men, about 42,000 killed and 230,000 wounded so far, is a senseless and cruel drain on our Nation's most valuable human resource.

In our third national meeting, held in Washington, D.C., on Tuesday, May 6, our members voted unanimously to seek immediate withdrawal of all U.S. Armed Forces from Vietnam.

We have attempted to present that opinion, and an outline of a specific plan for bringing about such withdrawal, developed by our executive committee and national council, with advice of our military sponsors, to the President, the Secretary of State, and the Presidential Assistant for National Security Affairs. We invited each of them to address our national meeting, or to send a representative to hear our views and state the administration's position. We have been rebuffed by them, up to now.

Accordingly, we deem it an especially valuable privilege to present this brief statement to this committee of the Congress.

OUR MILITARY CREDENTIALS

Business Executives Move for Vietnam Peace is privileged to have as expert advisers a distinguished group of retired officers of field and flag rank. Among these is one who has served with the Joint Chiefs of Staff, the distinguished former Marine Corps Commandant, Gen. David L. Shoup.

In his article, "The New American Militarism," the Atlantic Monthly, April 1969, General Shoup said: "For years up to 1964 the chiefs of the armed services, of whom the author was one, deemed it unnecessary and unwise for U.S. forces to become involved in any ground war in Southeast Asia." That was the expressed view of the late General of the Army Douglas MacArthur. "In 1964 there were changes in the composition of the Joint Chiefs of Staff, and in a matter of a few months the Johnson administration, encouraged by the aggressive military, hastened into what became the quagmire of Vietnam."

President Nixon said to the graduating class at the Air Force Academy, on June 4: "On the home front you are under attack from those who question the need for a strong national defense and indeed see a danger in the power of the defenders . . . It is open season on the Armed Forces."

Business Executives Move for Vietnam Peace does not attack the Armed Forces. We favor immediate withdrawal from Vietnam in aid of U.S. strategic defense and vital national interests. We rely on traditional views of U.S. military leaders, which we deem much sounder than the present leaders' views.

THE APPROPRIATION REQUEST FOR SOUTHEAST ASIA OPERATIONS

The budget of the United States, fiscal year 1970, pages 73 and 74, states \$23,025 million as recommended budget authority ("NOA") for "special Southeast Asia" and \$25,783 million (including \$336 million "economic assistance") outlays for special Southeast Asia in fiscal year 1970, and military personnel in Southeast Asia, \$689,000 in fiscal year 1970.

Secretary of Defense Clifford's Defense budget and posture statement, delivered in January to this committee, which has not been changed by Secretary Laird so far as we know, calls for the level of operations and personnel requested in the fiscal year 1970 budget document for Southeast Asia.

Business Executives Move for Vietnam Peace urges this committee to reject this request for NOA of \$23 billion and rescind obligatory authority heretofore granted to spend \$25 1/2 billion on the Vietnam war in fiscal year 1970.

We urge this committee to hand this request back to the administration, and to require a new estimate based on a planned, phased, complete withdrawal from Vietnam of all U.S. forces beginning at once.

We do not have sufficient detailed data nor any staff to estimate precisely what this reduced amount should be. In view of the diverse considerations involved in such a withdrawal and the difficulty of making a precise estimate of its cost (recalling my own experience as Assistant Secretary of the Navy for Financial Management and Comptroller of the Navy), I believe that \$12.5 billion is a prudent estimate of the cost savings that could be made.

ECONOMIC FACTORS URGING IMMEDIATE TERMINATION OF THE VIETNAM WAR

The national economy is endangered by the excessive defense and space spending. Such a large proportion of our economic effort—10 percent of GNP—is going into nonproductive activity. The effect of this is destabilizing to a free economy.

This has led, building up fast since 1964, to U.S. financial troubles. There were serious deficits brought on by the war—(unified) budget deficits of \$5,916 million in fiscal year 1964, \$1,618 million in 1965, \$3,790 million in 1966, \$8,790 million in 1967, and the whopping deficit of \$25,187 million in fiscal year 1968, for a cumulative 5-year deficit of \$45,301 million.

In parallel with this fiscal instability, consumer prices began running up rapidly in 1964 and are still advancing at the fastest pace in American economic history (at March 1969, 125.6 of 1957-59 base index of 100, and an increase from 119.5 during the previous 12 months—a 5-percent annual rate).

With enormous U.S. military expenditures overseas and trade balances declining, accompanied by heavy loss of monetary gold, the integrity of the dollar in international finance came under a cloud for the first time.

The growing noncompetitiveness of American industry led to its failure to hold even the American market. This condition must be regarded as of the gravest importance. In the 1968 annual report of the United States Steel Corp. is a discussion—pages 32-38—on international competition. On page 35 a bar chart shows steel import penetration of domestic market increasing from 7 percent in 1964 to 17 percent in 1968. The corporation says: "Moreover, although U.S. technology and productivity are improving, in an increasing number of industries they no longer seem sufficiently superior to offset our hourly employment cost disadvantage. Further, technological gains here can soon be matched or sometimes surpassed overseas, when capital is available. In addition, plant and equipment costs are much lower abroad. Thus the United States has a fundamental international competitive cost disadvantage—a disadvantage likely to worsen before it wanes."

This adverse condition of American industry cannot be repaired as long as the present level of nonproductive activity is sustained. The Vietnam war is an important part of that nonproductive activity.

The Congress enacted a 10-percent surtax to reduce the deficit, and the monetary authority has brought about tight money. Interest rates have risen to historic highs. The prime corporate lending rate was 7 1/2 percent but many banks were quoting 8 1/2 percent brokers' loan rates in New York on June 6.

The unavailability of credit has curtailed vital national programs for housing, education, and the like. Wage increases to offset price increases have continued

to spiral. Military spending for nonproductive purposes has pumped money into the economy without accompanying consumer and capital goods.

As this has gone along, an economic instability has developed that threatens to require more controls. The Congress has already been asked by President Nixon to continue the surtax and to abandon the investment credit that serves as an inducement to industry to modernize outdated capital facilities and equipment. (Neither of these restrictive tax measures would be needed if \$12.5 billion could be taken from the Defense budget by ending the Vietnam war.)

With the country running out of bank credit and with interest rates very high, surely the next steps will have to be direct wage and price controls and allocations of materials. There is beginning to be felt a considerable body of responsible business opinion that unless the Vietnam war is promptly ended and unnecessary defense spending curtailed, wages and prices will have to be frozen and vital materials allocated. This would lead to reestablishment of all the old OPA apparatus with which business and labor struggled, of necessity, during World War II. It would lead to a statist society. And in that statist society, where would be the economic liberties that we Americans hold dear? The freedom of competitive enterprise for business, the freedom of collective bargaining for labor, would be lost to Government controls in Washington. The economics of the situation tell us that the Vietnam war should be ended now in the vital interests of our free American society.

CONSTITUTIONAL POSITION

President Nixon also said at the Air Force Academy on June 4: "And there can be no question that we should not spend unnecessarily for defense. How much is necessary? The President of the United States is the man charged with making that judgment."

President Nixon is right that we should not spend unnecessarily.

Unfortunately, with many of the same military and diplomatic advisers on Vietnam as President Johnson had, such as Generals Westmoreland and Wheeler, and Ambassadors Bunker and Lodge, President Nixon seems to be making very little progress, either at Paris or on the bloody battlefields.

But the President is not the only man "charged with making that judgment."

The Congress has the power "to lay and collect taxes," "to provide for the common defense," "to raise and support armies," and "to declare war" (none has been declared against Vietnam), (U.S. Constitution, art. I, sec. 8, "Powers of the Congress").

The President is "Commander in Chief of the Army and Navy" and "shall from time to time give to the Congress information on the state of the Union and recommend to their consideration such measures as he shall judge necessary and expedient" (art. II, secs. 2 and 3).

Constitutional responsibility for these decisions clearly falls on the Congress. They must not be taken by the President nor abandoned by the Congress.

The decisions of the Congress on whether to continue the Vietnam war—and to permit other mistaken adventures of intervention like Vietnam to be commenced by the President—will have vital implications for the future. If the Congress says "No" to these military adventures, free enterprise in a free economy will survive and prosper in America. If the Congress is acquiescent, condoning them and appropriating money for them, that free society is doomed.

So we, Business Executives Move for Vietnam Peace, urge the Congress to review the Defense posture and budget for fiscal year 1970 and revise the budget so as to deny the President the appropriations with which to continue the Vietnam war. We urge this in the vital interests of the United States.

Mr. MAHON. What is this committee of businessmen to which you refer? How big is it?

Mr. ARMSTRONG. Mr. Chairman, the Business Executive Move for Vietnam Peace is 2,500 owners and executives of American business corporations. We are entirely a voluntary association of mostly men—of course, women are permitted—and we are either the owner or the executive. We are in 49 States. We have been seeking since 1967 by open and lawful means to bring about an end to U.S. participation in the war. We believe it to be contrary to American vital, strategic and economic interests.

Mr. MAHON. As a former Assistant Secretary of the Navy, of course, you recognize that all of this discussion we are having in this country about the desirability of our being in the war is weakening the country at the peace conference and is weakening our posture in Vietnam. I think you agree to that.

Mr. ARMSTRONG. Sir, I don't believe the effort that we are making to extricate the United States from a commitment that is very damaging to our economic and strategic positions is in any way weakening America. I believe, sir, we are strengthening America.

Mr. MAHON. I am not talking about America in the long run or in a certain context. You know that our opponents, if they feel we are just about ready to pull out, will not make major concessions toward a peace or an acceptable compromise. If we had had large organizations during World War II and World War I of American citizens tending to undermine the war effort, we would not have done as well in those wars, I would assume. Would you agree?

Mr. ARMSTRONG. Sir, the situation here is entirely different. It is entirely different. We were fighting a war in which we had been attacked by Japan in World War II. There was no question about the unanimity of America, including all segments of business. But there is not any question that a tiny country 10,000 miles from here, 17 million Asiatics are threatening the security of the United States and in the meantime we are draining the vital resources of America.

We have had enormous casualties, about 4,200 American soldiers and 230,000 wounded and we have spent hundreds of billions of dollars draining America. This is detrimental to America. What we were doing in World War I and II was not detrimental to America. It was necessary. But this is entirely different.

We believe, sir so far as we, the business executives, can tell, that there is nothing that would give us to believe so far as we have heard that there is any change on the part of the various elements in Vietnam. They want us out of there. It is not our country; it is their country. We could be at this 10 years, Mr. Mahon, if we go on at this rate.

Mr. MAHON. You feel that we should just place our forces on ships and planes and get out of Vietnam, generally speaking?

Mr. ARMSTRONG. Yes, sir. We request that there be a complete phased withdrawal from Vietnam of all U.S. forces. We believe this to be in the best interests of the United States. In fact, we believe it is essential.

The strategic interests we have in other places of the world have been adversely affected by our preoccupation over there. We have over 600,000 people involved in it. They are all pinned down.

I would submit, sir, if I might just brief the material on page 3 on the economic factors—page 2 covers the budgetary data with the cumulative budget deficit over the past 5 years of \$45 billion for this thing and the result of it has been the inflation in wages and prices. We are now in an extremely tight money position. When I wrote this paper on Friday afternoon, as I say on page 4, the prime rate was 7.5 but some banks were quoting 8.5 to brokers. This morning on Wall Street the prime lending rate of American banks went up to 8.5 percent.

You gentlemen in the Congress have been asked to continue with the surtax of 10 percent and take away the very beneficial money for industry for the modernization of plants that was enacted by the

Congress a few years ago about the investment credit and meanwhile the inflation is going on at the worst rate in history of America. This is the result of that war. I believe, sir, with the greatest respect to the future, that we are going to come to a time when in order to avoid the inflation unless this drain is ended, you will have to come, as we did in World War II, to price controls, wage controls and material allocations and we will be moving to a Government-controlled economic society. All of this because we, the United States, have made a mistake and got involved in a war in Southeast Asia that doesn't have the slightest concern for our security.

Sir, as an Assistant Secretary of the Navy, this grieves me very much. I believe it to be an aberration from the point of view of American military policy. I mention here on page 2, sir, the view of General Shoup, who is one of the military committee of Business Executives Move for Vietnam Peace and how he mentions in his article that in 1964, as the result of a change in the composition of the membership of the Joint Chiefs of Staff the Joint Chiefs reversed the historic military policy of the U.S. involvement in a land war in Asia.

I would submit that General MacArthur, who is known to all of us from his participation in World War I and II, made some remarks about the undesirability from the point of American military strategy of involvement in a land war in Asia. This is what we seek. If we get back the same military policy that we had in World War I and II, which were the basic security of the United States, that is what we, the business executives, are for. But this thing is destroying us. It is destroying us economically.

That is the burden of our argument.

Mr. MAHON. You are a former Assistant Secretary of the Navy and yet the present Secretary of the Navy and the Secretary of Defense and the Joint Chiefs of Staff tell us that what you are saying to us is wrong.

Mr. ARMSTRONG. Yes, sir.

Mr. MAHON. That we should bring this war to an honorable conclusion is much to be desired. We cannot flee in confusion from our commitments.

Mr. ARMSTRONG. Sir, I believe when you make a mistake it is very honorable to admit it. I disagree with the men that you quoted with great respect to them because they are leading military men. We have leading military men who are advising us on this committee of business executives, and we believe that these present advisers, such as Westmoreland and Wheeler, are wrong and have been proved to be wrong conclusively by the events of the last 5 years.

We look with great concern that President Nixon, the new President, is advised by men like Ambassador Cabot Lodge and Ambassador Bunker. They have been there. What those men have been through in this war has been proved absolutely incorrect. You gentlemen are facing an appropriation here for \$28 billion at NOA and expenditures of about \$25 $\frac{3}{4}$ billion.

I can't say, sir, exactly what this should be because from my experience as Assistant Secretary for Finance for 2 years, I know there are many, many considerations and the variables, how you would bring about a phased withdrawal. But I believe you could save about \$12.5 billion. If you don't do it, where are you going to go with this economy?

Are you going to have 8.5 percent interest or more? Are you going to have it impossible for the American housing industry to do what is needed for the people, et cetera, et cetera?

It is very bad for business. I was very disturbed, Mr. Mahon, when I read in the Times this morning on the train coming down here that the Chief Financial Officer of the Pentagon, Mr. Robert C. Moot, told Congress there can be no significant reduction in arms expenditures even after the war in Vietnam unless our commitments and our missions can be scaled back.

We believe, the 2,500 of us, who are owners and executives of business, and responsible for very large investments and hundreds of thousands of jobs, that this is absolutely contrary to the best interests of the United States, and that these commitments must be scaled down and that the first one to scale down is this war and let the Vietnamese have their country.

Sir, it doesn't make the slightest difference to the people of New York where I live whether Vietnam is run by one group or another. We, the businessmen, are absolutely certain that President Thieu does not represent—how could he represent—the views of the Vietnamese people when all the opposition people have been clapped in jail. This is what we are asking you gentlemen in Congress to address yourselves to.

We believe that it is an absolutely vital interest that Congress deal with this because the President said at the Air Force Academy, the President is the man charged with making that judgment, which is the judgment of how much is necessary. He says there can be no question that we should not spend unnecessarily for defense. We, the Business Executives Move for Vietnam Peace, agree with that. He says it is the President who is the man charged with that judgment. The Constitution charges the Congress with that judgment. You, the Congress, have the power to collect taxes and not the President, and provide for the common defense and not the President, and raise and support armies and not the President, and to declare war. Incidentally, you know there is not any. He is Commander in Chief of the Army and Navy and he, from time to time, gives to the Congress information on the state of the Union and recommends to their consideration such measures as he shall judge necessary and expedient.

I submit to you gentlemen on behalf of we 2,500 business executives in 49 States that this war is not in the best interests of the United States, and you gentlemen should begin to require it to be terminated by reducing the appropriations for it. You can say how much it would cost and how much you could save. Surely, Mr. Mahon, if I, a year from now, suggested very hesitantly and respectfully because I don't have the staff or expertise at present to figure out how much we could save by phasing it down, I suggested \$12.5 billion would be prudent. If Mr. Moot is going to come along, and there has been no reduction in this \$23 billion and \$25.5 expenditures and add another \$12.5, what are we going to be looking at a year from now?

(Discussion off the record.)

Mr. MAHON. Mr. Armstrong, we are not sitting here for purposes of argument with witnesses who appear before us. We are seeking information and the views of witnesses.

Mr. ARMSTRONG. No, sir; and I thank you very much for hearing me.

Mr. MAHON. We have heard from many Pentagon witnesses over the years, civilian and military, and they have represented to us that they thought that we have an interest throughout the whole world, that this is really one world, and what happens in any part of it very often is significant from the standpoint of the interest of the United States.

We have heard tremendous numbers of witnesses say that the welfare of our country is involved or may be involved in what happens in Europe or what happens in the NATO countries, what happens in the Middle East, what happens in Latin America, what happens in the far Pacific. We have heard testimony to the effect that there is a contrast between Communism and freedom, and that the United States must do its best to promote peace and avert World War III and so forth and so on.

So we will be glad to take your testimony along with the testimony which we will receive and have received here from various witnesses who appear before us. Thank you very much.

Mr. ARMSTRONG. We thank you very much, Mr. Mahon.

Mr. MAHON. I would like to say further for the record that you state that you speak of 2,500 businessmen. I assume that these 2,500 businessmen didn't have the opportunity to read your statement. This doesn't represent precisely the views probably of all these 2,500 businessmen. I doubt that they have all ever met together and discussed these issues.

Mr. ARMSTRONG. No, sir. Excuse me, that is not correct.

Mr. MAHON. I say not all of them. Maybe a small group or maybe several hundred?

Mr. ARMSTRONG. We have had three meetings here, sir, including one on the 6th of May. The position I speak for—

Mr. MAHON. How many were here on the 6th of May?

Mr. ARMSTRONG. 350. Our resolution was circulated and we presented a memorandum signed by 750 members to the White House on this position.

Sir, we are not businessmen. We are executives and owners. We permit no businessmen as such. They have to be in executive position, managing the fortunes of the business. That is why we are so few in number. Excuse me for correcting you on the record.

Mr. MAHON. I don't think you are correcting me. I said I was satisfied that 2,500 members had never met at one time and agreed on these statements and you say that 800-plus did meet.

Mr. ARMSTRONG. On the 6th of May. We were visited and addressed by very distinguished Members of the House and Senate on that occasion. We were here all day. We were addressed by Representative Findley, by Senator Yarborough and Senator Fulbright and Senator Cooper, all of whom are supporting our point of view on this subject. We believe we are a very responsible group of people.

Mr. MAHON. The Senators and Representatives whose names you have given are not present here to respond to your statement and I want to make it clear that only they can outline their views. It would not be proper to infer that they subscribe to the views you have expressed.

Mr. ARMSTRONG. No, sir.

Mr. MAHON. The men whose names you have given as among those addressing your group, have expressed their views upon a number of occasions, and I think we should let those statements speak for themselves.

Mr. ARMSTRONG. That is right, sir; but on the question of the immediate commencement of a phased and complete withdrawal from Vietnam, this has been submitted to our membership and has the broad approval of our 2,500 members.

Mr. MAHON. I wish you would submit for our attention the precise wording of the submission. Everybody is in favor I would hope of the honorable end of the war at the earliest possible moment.

Mr. ARMSTRONG. It was published in an advertisement in section 4 of the New York Times on a recent Sunday and I will submit that for the record.

Mr. MAHON. You can submit it to the committee.

Mr. ARMSTRONG. Mr. Mahon, in view of the characterization that you have made of the military as to their views about the interest of the United States in intervening all over the world, I am sure you didn't mean that.

Mr. MAHON. I don't believe I said that.

Mr. ARMSTRONG. Here is an official Department of State policy on Vietnam.

Mr. MAHON. I don't think I said that the military urge that we intervene all over the world. I think I said that the military take the position, and so do the civilian leaders of our country, that we have a stake in all parts of the world, and we must be concerned about all areas of the world. I don't mean, and didn't say that we need to go to war because of something that develops in certain parts of the world. It is generally believed by Americans we cannot live entirely to ourselves without any regard to what goes on in the rest of the world.

Mr. ARMSTRONG. We thoroughly agree with that as businessmen. We are vitally interested. One of the things that is being hurt that is referred to in my statement was a reference to the U.S. Steel Corps., and the effect upon penetration of American markets by Europeans because of the increase in the wages; this is one of the reasons that we have to get out of Vietnam, because our economy is being so damaged by the imports. Textiles are in this too.

I would like to submit the policy statement of March 27, 1969, the official document of the Department of State as to what our objectives are.

Mr. MAHON. Very well.

(The document follows:)

UNITED STATES OBJECTIVES IN VIETNAM

As stated by Secretary Rogers before the Senate Foreign Relations Committee on March 27, our position on Vietnam in essence is:

We are not seeking a military victory, nor do we want military escalation.

We believe that peace should give the South Vietnamese people the opportunity to determine their own future without any external interference.

In support of this policy of peace, we are seeking to achieve agreement with North Vietnam on mutual withdrawal of forces. We are prepared to begin withdrawal of our forces simultaneously with those of North Vietnam. Withdrawals would reduce the scale of hostilities and would be tangible and visual evidence of the professed desire of both sides to negotiate a peace settlement.

As a military measure relatively simple to observe and because it has agreed status as an integral part of the Geneva Accords of 1954, we are also seeking restoration of military respect for the demilitarized zone. This also would be a verifiable test of good faith and a confidence building measure.

We will continue to press for an early mutual release of prisoners of war. Here again there would be a tangible evidence of good intentions on both sides, as well as a humanitarian measure.

ESSENTIAL ELEMENTS FOR SETTLEMENT

Basically, and as essential elements in an ultimate settlement, we envisage:

Restoration of the provisional military demarcation line at the 17th parallel, with reunification to be resolved in the future by the free decision of the people of North Vietnam and of South Vietnam;

Restoration and full compliance with the principle of noninterference between the two Vietnams;

Full compliance with the Laos accords of 1962 including the ending of the use of Laos as a corridor and the withdrawal of the North Vietnamese troops now in Laos;

Respect for the territorial integrity and neutrality of Cambodia;

A cessation of hostilities;

Adequacy international inspection and supervision machinery to verify the implementation of military agreements and to insure respect for a continued adherence to the military and political elements of a settlement. This is vital because the peace that will be achieved must be enduring.

U.S. OBJECTIVES SOUND AND REASONABLE

These are our objectives. We believe they are sound and reasonable. The Paris meetings are based on our hope that the other side really desires to move toward a true peace and with this hope in mind, we are pursuing the talks with energy and purpose. President Nixon has said he thinks the best chance for progress lies in private talks, away from the glare of publicity. This means there will be a trying time ahead both in Paris and in Vietnam. We will need great patience and determination in our negotiations and on the battlefield. As President Nixon stated in his March 18 news conference, we are trying to do everything that we can in the conduct of the war in Vietnam to see that we can go forward toward peace in Paris.

Mr. MAHON. Thank you very much.

Mr. ARMSTRONG. Thank you for hearing us.

MONDAY, JUNE 9, 1969

CEILING ON INDUSTRIAL FUNDED FACILITIES OR ACTIVITIES

WITNESS

HON. G. WILLIAM WHITEHURST, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. MAHON. Congressman William Whitehurst, I believe, has a statement to present.

Mr. WHITEHURST. Mr. Chairman, I succeeded the Honorable Porter Hardy, who I think you knew and who was here for many years.

Mr. MAHON. Yes; we knew him well and favorably.

Mr. WHITEHURST. I hope I can fill his big shoes. I have a very brief statement to make today but I think it is a very significant one. This is in connection with the ceiling that has been maintained as far as I am concerned in industrial funded facilities or activities. My testimony is in support of lifting that ceiling because I think that financially it has not been sound. We have been perhaps pennywise and pound foolish and I would like to read this statement in support of that.

Industrial funded activities are comparable to private business in that their workload is assigned based on various program budgets such as ship repair. Their personnel are paid from the funds received for the work they do, and therefore, the number of personnel required is dictated by the workload. A key factor in the efficiency of an industrial funded activity is the proper use of overtime. Overtime usage in the range of 2 percent to 6 percent does not significantly increase program costs, since direct labor overtime, where the bulk is used, carries no fringe benefits and only reduced overhead costs. Also, there are offsetting advantages costwise, to use of modest amounts of overtime. On the other hand, excessive overtime, when sustained for months on end, gradually leads to less efficient work productivity.

According to an article in the Wall Street Journal last week, the arbitrary ceiling has resulted in the loss of some 500 million tax dollars. The same article mentioned that due to excessive overtime, and a resulting delay in normal work programs, the employment ceiling has cost more than it saved. It seems that too many employees, or too few employees, in an industrial funded activity are equally impractical. An industrial funded activity should be allowed to correlate its work force with its workload to operate efficiently.

An additional factor, and not incidental to total effectiveness, is the effect on morale by the required personnel adjustments. Job security becomes almost nonexistent.

If I might just add to this, I have a very large naval base in my district. I have a major Government shipyard in my district. To a man, the officers in command of these facilities, as well as the labor representatives in the yards and the naval area work facility which comes under this, all felt that it would be better if that ceiling were taken off and they were allowed to operate strictly on the basis of funds that were appropriated for the operation of those facilities.

Mr. MAHON. Thank you very much. We will be glad to give consideration to your testimony.

Mr. WHITEHURST. Thank you, Mr. Chairman.

OVERSEAS DEPENDENTS' EDUCATION

WITNESS

**MRS. MARY CONDON GEREAU, LEGISLATIVE CONSULTANT,
NATIONAL EDUCATION ASSOCIATION**

Mr. MAHON. Now we have a representative of the National Education Association, Mrs. Mary Condon Gereau.

Mrs. GEREAU. Thank you, Mr. Chairman.

I am mainly thanking you for your kindness in the past and urging you to do the same in the future.

I might say I was in Europe and saw the overseas dependents' schools and the problem is inadequate facilities, which is difficult for this committee to come to grips with. In the statement I point that out.

There is a proposal in this year's request from the Defense Department for a minor amount of money to be made available to the education authorities over there to take care of situations which up to now have not been able to be corrected because they are un-

der the control of the military and they have other requirements. In 1965 I went with the committee that Congressman Dent chaired and saw a school on the Wiesbaden base, a very bad facility left over from World War II, with no fire escapes. I was there 2 weeks ago and the school still has no fire escapes. It is a firetrap. If this is approved by the committee, the superintendent in that theater can go ahead and put fire escapes in that building. This is the sort of money that is in this, but then, it is not major construction money.

Mr. MAHON. Thank you very much. We will be glad to give consideration to your testimony.

Mrs. GEREAU. I want to thank the committee for its patience.

STATEMENT OF GEORGE D. FISCHER, PRESIDENT, NATIONAL EDUCATION ASSOCIATION

Mr. MAHON. Mr. Fischer's statement will be made a part of the record at this point.

(The statement follows:)

The National Education Association, speaking also for the Overseas Education Association representing 4,000 teachers in Department of Defense Overseas Schools, urges that the request in the President's budget for \$135.4 million for DOD dependents education be approved by the committee and the Congress.

This budget will provide for continued expansion of the kindergarten program initiated last year, for an improved host nation program, for training and employment of teacher aides, additional pupil personnel services including school nurses, additional guidance personnel, an expanded special education program for the handicapped, and improved library services. It also provides for normal increases in teachers' salaries as required in Public Law 89-391 without increasing the pupil-teacher ratio.

A new and important provision is the authorization for area superintendents to have complete control of the educational resources including minor construction and necessary remodeling. Previously they have had control only over the resources of personnel and supplies. This is a small but vital step toward meeting the facilities problem which continues to be the major stumbling block to an adequate education program for the dependents of military personnel stationed overseas. Under present policies, the base commander may spend up to \$25,000 for construction of all kinds on his own initiative. Military requirements understandably take precedence. In almost all instances school facilities have a low priority. With the increased need for facilities brought about by the establishment of kindergartens, the schools have been faced with even further overcrowding beyond that which has plagued them for years. The provision for limited construction funds in the area superintendent's budget will provide some relief for the most acute situations which cannot be met by base commanders, no matter how eager they may be to improve the schools. Such construction will be mainly for remodeling of other buildings to convert them to classroom use.

Of course I do not mean to imply that construction is the only major problem in the DOD schools. However, most of the other problems which arise we believe can be resolved internally in the DOD through amending existing regulations which differ among the three branches of the armed services. The Civilian Personnel Office and the Director of Dependents Education are working on this constantly and we commend them for their efforts. The Overseas Education Association has entered into negotiation agreements with the administration of DOD schools in the European and Pacific areas under Executive Order 10088 and we believe this is a major step forward toward resolution of many of the unique problems which DOD teachers face.

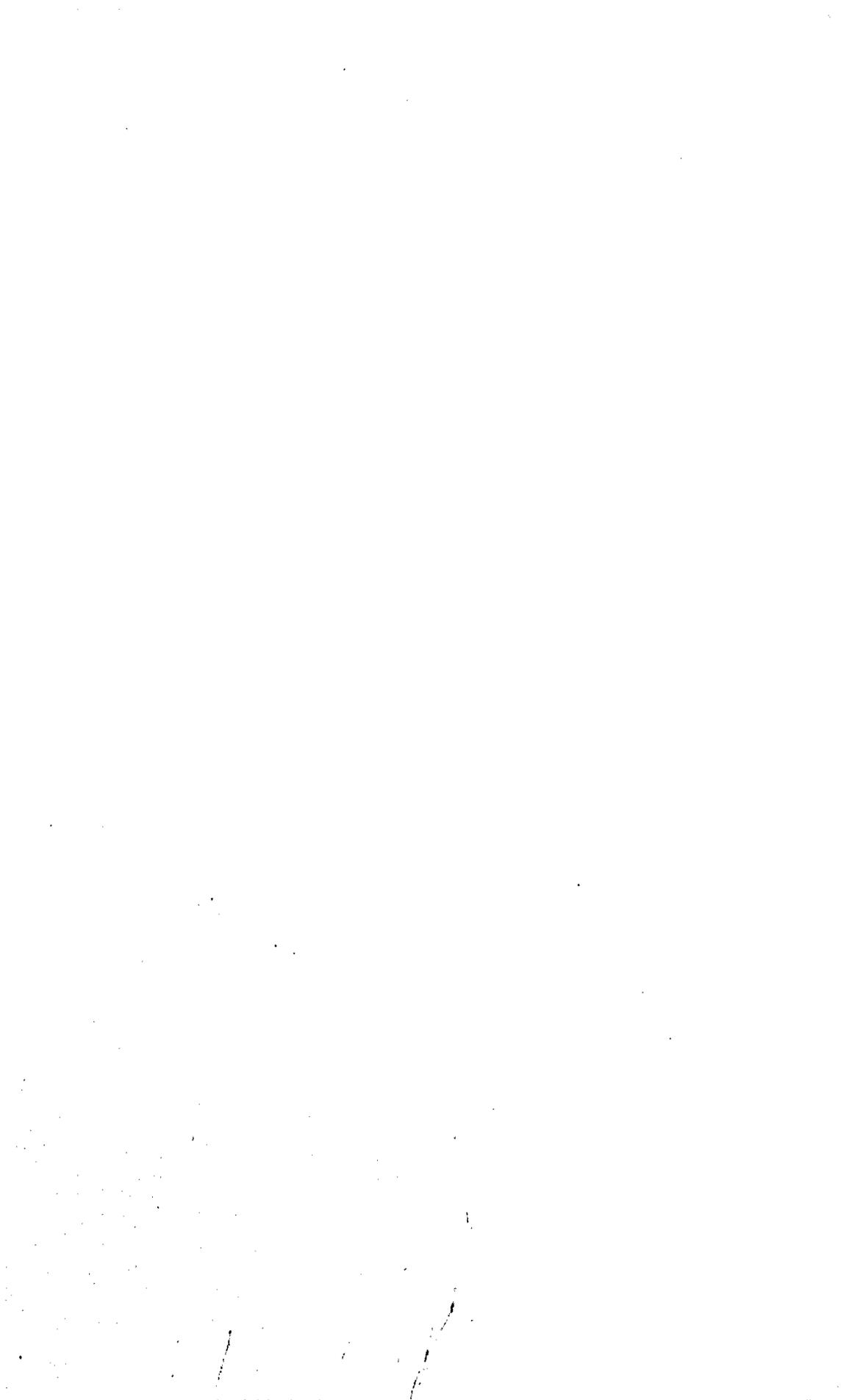
The host nation program is one which has suffered most in those instances when the overseas school budget has been inadequate. This is indeed tragic. The one compensation for the inconveniences which dependent children endure, in that they are not in the normal public school situation, is the potential opportunity to meet other children in other lands, to learn the host nation language

and to be exposed to the cultural advantages of living abroad. Unfortunately this potential is not realized except to a very minor degree.

On a recent visit to Europe where I met and talked with many of our overseas teachers, one related an anecdote which illustrates this point. The teacher had taken a group of children on a field trip to the Guttenberg museum in Wiesbaden where they were privileged to see the original Guttenberg Bible and learn about the invention of the printing press. In reports after the field trip it became evident that the real highlight of the trip, from the children's point of view, was the opportunity to eat in a German restaurant. Some of the children had lived on the nearby air base for almost 2 years and had never been in contact with anything representative of the host country. The term American ghetto is offensive—but too true, I'm afraid. The DOD teachers and administrators are most anxious to improve the host nation program and we urge the committee to assist them in this effort by providing the full amount requested for the DOD budget for overseas dependents' education. If cuts are made, the host nation's program is always the first to go. After all, if the choice is between this program or arithmetic the decision is obvious.

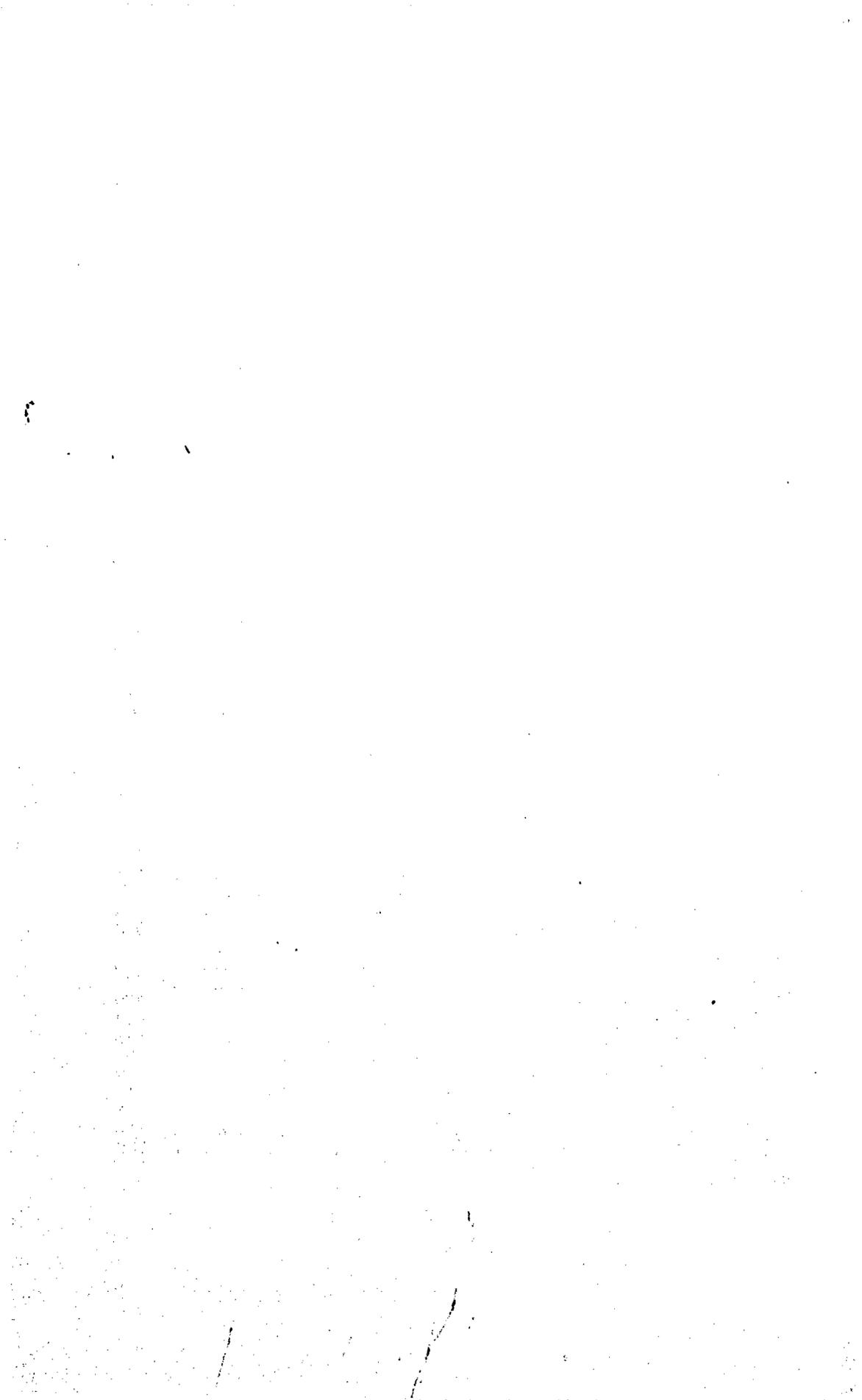
The quality of teachers in the DOD schools is superior. They are, with few exceptions, a creative, dedicated group very much concerned with the education of the children they teach. This is understandable since it requires somewhat of an adventurous spirit to sever ties with one's family and hometown for a period of at least 2 years to teach in Okinawa or Iceland or Turkey. They are not all in the glamor spots such as West Berlin or Tokyo, you know. We are proud that so many of these people are members of the NEA.

This committee has been very understanding of the problems of the Department of Defense dependents' education program. On behalf of the dependent children and those who teach them, the National Education Association expresses its appreciation and urges your continued interest and support.



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