

DEPARTMENT OF DEFENSE



ANNUAL REPORT

FOR FISCAL YEAR

1963

Including the Reports of the

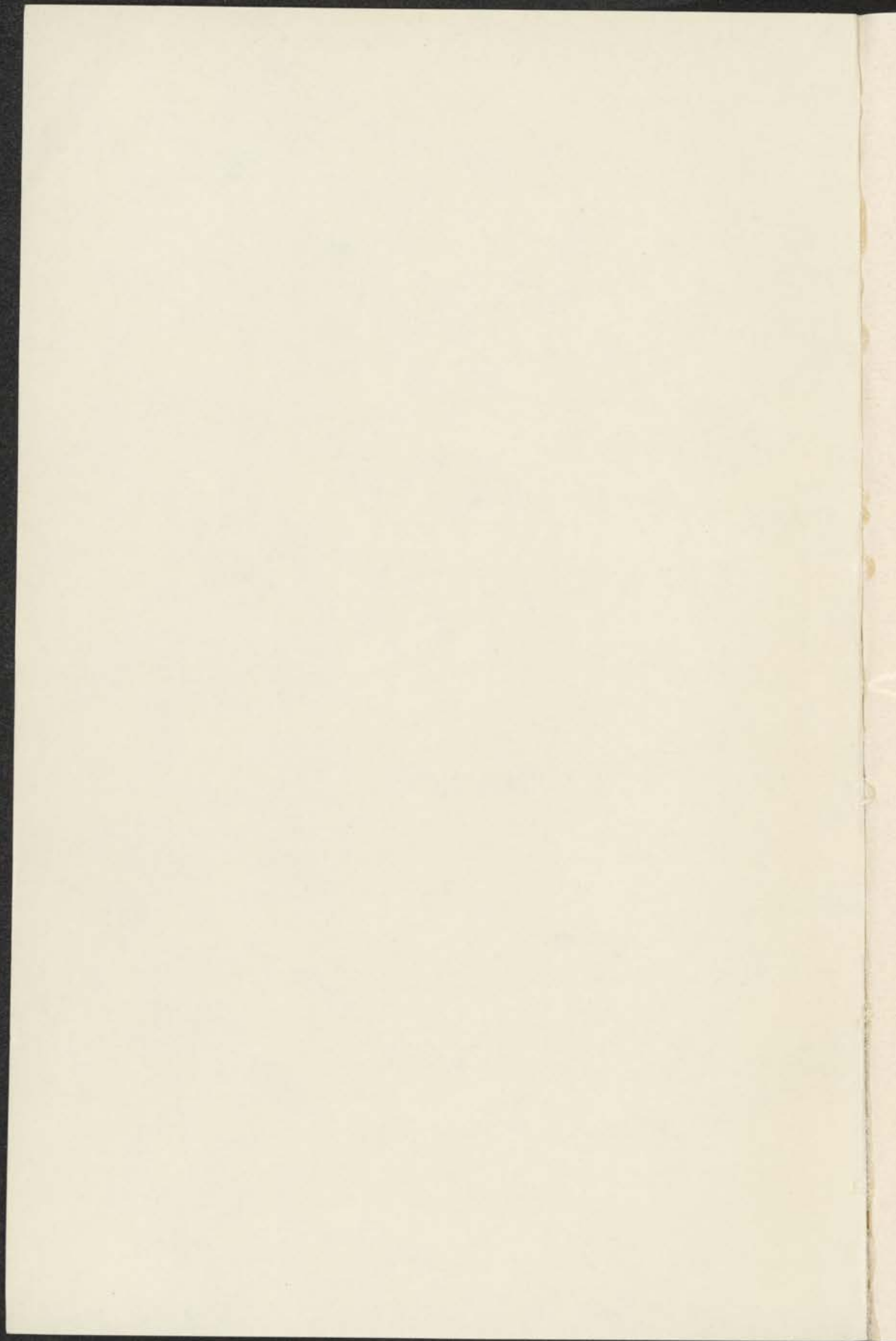
SECRETARY OF DEFENSE

SECRETARY OF THE ARMY

SECRETARY OF THE NAVY

SECRETARY OF THE AIR FORCE





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U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 1964

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ANNUAL REPORT OF THE SECRETARY OF DEFENSE

Letter of Transmittal

THE SECRETARY OF DEFENSE

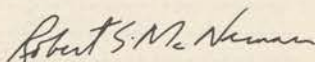
WASHINGTON

May 20, 1964

DEAR MR. PRESIDENT:

In compliance with Section 202(d) of the National Security Act of 1947, as amended, I submit the annual report of the Secretary of Defense for fiscal year 1963, together with the reports of the Secretaries of the Army, Navy, and Air Force for the same period.

Yours sincerely,



ROBERT S. McNAMARA

THE PRESIDENT
THE WHITE HOUSE

ANNUAL REPORT OF THE SECRETARY OF THE AIR FORCE

Chapter I	Introduction	1-3
II	Current Situation	4-10
III	Manpower	11-17
IV	Manpower Training	18-24
V	Research and Development	25-31
VI	Installation	32-38
VII	Manufacture and Development	39-45
VIII	Procurement and Production of Material	46-52
IX	Logistics Support	53-59
X	Management	60-66
XI	Summary	67-73

Appendix		74-80
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Index		81-87
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Letter of Transmittal

The Secretary of Defense

Washington

May 20, 1961

Dear Mr. Secretary:

In compliance with Section 302(f) of the National Security Act of 1947, as amended, I submit the annual report of the Secretary of Defense for the fiscal year 1961, together with the reports of the Secretary of the Army, Navy, and Air Force for the same period.

Yours sincerely,



Robert S. McNamara

The President
The White House

Contents

ANNUAL REPORT OF THE SECRETARY OF DEFENSE

	Page
Chapter I. GUARDING THE NATIONAL SECURITY.....	3
II. OPERATIONAL FORCES.....	11
III. DEFENSE MANAGEMENT.....	31
Annual Report of the Reserve Forces Policy Board.....	59
Annual Report of the Defense Supply Agency.....	73
Annual Report of the Office of Civil Defense.....	87

ANNUAL REPORT OF THE SECRETARY OF THE ARMY

Chapter I. INTRODUCTION.....	105
II. OPERATIONAL READINESS.....	107
III. REORGANIZING THE ARMY.....	119
IV. DEVELOPMENTS IN DOCTRINE AND TRAINING.....	125
V. THE ULTIMATE WEAPON.....	132
VI. THE SINEWS OF WAR.....	141
VII. NEW TOOLS AND WEAPONS FOR THE SOLDIER.....	156
VIII. PUBLIC WORKS.....	167
IX. CIVIL AFFAIRS.....	172
X. AIDING OUR ALLIES.....	177
XI. RETROSPECT AND PROSPECT.....	180

ANNUAL REPORT OF THE SECRETARY OF THE NAVY

Chapter I. THE MISSION OF THE DEPARTMENT OF THE NAVY.....	185
II. DEPARTMENT OF THE NAVY PROGRAMS AND EXPENDITURES.....	188
III. NAVY AND MARINE CORPS OPERATIONS.....	190
IV. INCREASED CAPABILITY.....	197
V. INCREASED ECONOMY.....	221
VI. THE NAVY AND THE CIVILIAN ECONOMY.....	232
VII. CONCLUSION.....	238

ANNUAL REPORT OF THE SECRETARY OF THE AIR FORCE

Chapter I. INTRODUCTION.....	243
II. COMBAT FORCES.....	246
III. MANPOWER.....	259
IV. MILITARY TRAINING.....	264
V. HEALTH AND WELFARE.....	271
VI. INSTALLATIONS.....	277
VII. RESEARCH AND DEVELOPMENT.....	282
VIII. PROCUREMENT AND PRODUCTION OF MATERIEL.....	294
IX. LOGISTIC SERVICES.....	300
X. MANAGEMENT.....	305
XI. BUDGET.....	311
Appendix.....	316
Index.....	365

Contents

ANNUAL REPORT OF THE SECRETARY OF DEFENSE

Chapter		
I	Organization and National Security	1
II	Organizational Structure	11
III	Organizational Management	21
IV	Annual Report of the Secretary of Defense Policy Board	29
V	Annual Report of the Secretary of Defense Policy Board	39
VI	Annual Report of the Office of Civil Defense	49

ANNUAL REPORT OF THE SECRETARY OF THE ARMY

Chapter		
I	Introduction	1
II	Organizational Structure	11
III	Organizational Management	21
IV	Organizational Management in Defense and Training	29
V	The Defense Policy Board	39
VI	The Secretary of War	49
VII	New Tools and Weapons and the Soldier	59
VIII	Public Works	69
IX	Civil Defense	79
X	Annual Report of the Secretary of the Army	89
XI	Introduction and Foreword	99

ANNUAL REPORT OF THE SECRETARY OF THE NAVY

Chapter		
I	The Secretary of the Department of the Navy	1
II	The Secretary of the Navy Department and the Department	11
III	Navy and Marine Corps Organization	21
IV	Department Organization	29
V	Department Organization	39
VI	The Navy and the Department	49
VII	Conclusion	59

ANNUAL REPORT OF THE SECRETARY OF THE AIR FORCE

Chapter		
I	Introduction	1
II	General Policy	11
III	Management	21
IV	Management Training	29
V	Training and Research	39
VI	Research	49
VII	Research and Development	59
VIII	Research and Development by Military	69
IX	Research and Development	79
X	Research	89
XI	Research	99
Appendix		109
Index		119

Guarding the National Security

Annual Report of the SECRETARY OF DEFENSE

July 1, 1962, to June 30, 1963

Contents

	Page
Chapter I. GUARDING THE NATIONAL SECURITY.....	3
The Cuban Crisis.....	4
Assistance to Vietnam.....	8
Nuclear Testing.....	9
II. OPERATIONAL FORCES.....	11
Retaliatory Forces.....	12
Continental Defense.....	15
Civil Defense.....	18
General Purpose Forces.....	20
Reserve Forces.....	26
Defense Space Programs.....	28
III. DEFENSE MANAGEMENT.....	31
Organization.....	31
Planning-Programing-Budgeting.....	32
Research and Development.....	36
Manpower.....	38
Logistics.....	43
Collective Security.....	50

1. Guarding the National Security

During fiscal year 1963, the armed forces continued to carry out successfully their basic mission of protecting the national security interests of the United States. They provided the military strength that made it possible to ward off the challenge of Soviet missiles in Cuba. They rendered vital assistance to friendly countries threatened by aggression and subversion. They, together with the forces of our allies, maintained an effective guard over the frontiers of the free world.

At the same time, notable gains were achieved in combat effectiveness, readiness, and flexibility. In line with policies and programs initiated in 1961, the size of our retaliatory forces as well as their survivability in case of surprise attack increased considerably. Further progress was made in developing an effective command and control system. The general purpose forces benefited from substantial deliveries of modern weapons and equipment, greatly improving their readiness as well as striking power. The mobility of strategic reserves was increased with the delivery of additional transport aircraft. Adjustments in the reserve components provided an organization better designed to meet the urgent reinforcement requirements of the active forces. The plans and programs approved during the fiscal year will help to maintain the effectiveness of our armed forces in the years ahead.

While the progress made in tailoring the armed forces to current and future requirements has been encouraging, it should not be concluded that all major problems have been solved. The Department of Defense will continue to be confronted with critical and difficult decisions. Changes in the world situation and technological breakthroughs may greatly alter our current forecasts of future developments. These forecasts may also be affected by continuing studies on the full-scale development and deployment of new weapon systems, the future size and composition of our naval forces, the effectiveness of ballistic missile defenses, the rate of modernization of tactical and strategic aircraft, the military space program, and many similar matters. Equally important is an accelerated improvement in management efficiency to insure that Defense activities are carried out at the lowest possible cost. The successful resolution of such problems will require in the future as it has in the past a close cooperative effort by the Executive Branch and the Congress.

The Cuban Crisis

The importance of maintaining an adequate, ready, and flexible Defense establishment was clearly illustrated in the fall of 1962 when the Soviet Union moved ballistic missiles into Cuba.

Starting in late July 1962, evidence of increased Soviet military assistance to Cuba accumulated. The presence of air defense missiles was confirmed from pictures taken on August 29. A determination that certain shipping crates noted on September 28 aboard Cuba-bound ships contained IL-28 medium-range bombers was made on October 9. Conclusive proof of the presence of medium-range ballistic missiles did not become available until the analysis of photographs taken on October 14 was completed on the next day. Further photographic evidence on the size and the type of the Soviet buildup was obtained during the following days as the high altitude air surveillance, assigned to the Strategic Air Command on October 12, was greatly increased by Presidential order.

This sudden clandestine introduction of clearly offensive weapons of mass destruction constituted a direct threat to the peace and security of the Western Hemisphere. It had to be countered quickly and effectively. During the week of October 15, the President and his civilian and military assistants canvassed the alternative courses open to the United States. The conclusions reached, as announced to the Nation by the President on October 22, called for a strict quarantine on all offensive military equipment under shipment to Cuba, increased close surveillance of Cuba, reinforcement of our base at Guantanamo, and various diplomatic measures, including the endorsement of the quarantine by the Organization of American States. When this endorsement was given on October 23, the President issued Proclamation 3504 establishing the quarantine effective on October 24 and directed the Secretary of Defense to take appropriate measures.

Military steps to meet the current emergency had been initiated during the previous week. Better than normal security was maintained, aided by the previous scheduling of routine amphibious and other naval exercises in the Caribbean and Atlantic areas and by the gradual buildup of air defenses in the southeastern United States started early in the year. Nevertheless, rumors of increased military activities began to circulate, but it was vital to the success of our policy that maximum secrecy be maintained until our course of action was firmly determined, our information on Soviet activities as complete as possible, and our armed forces ready to carry out their assignments.

Since it was not known what course the Soviet Union would choose to follow, the armed forces had been ordered "to prepare for any eventualities," and almost the entire Defense establishment was placed on alert status.

In case the Soviet Union determined to unchain a nuclear attack, our retaliatory forces were ready to counter. Starting on October 20, the Strategic Air Command (SAC) began dispersing its bombers and placed all aircraft on an upgraded alert—ready to take off, fully equipped, within 15 minutes. On October 22, the B-52 heavy bombers started a massive airborne alert, involving 24-hour flights and immediate replacement for every aircraft that landed. ICBM (Intercontinental Ballistics Missile) crews assumed a comparable alert status. POLARIS submarines went to sea to preassigned stations. The tremendous nuclear firepower of the United States was deployed to discourage any reckless challenge.

Our air defense forces, under the operational control of the North American Defense Command (NORAD), were equally ready for any emergency. Fighter interceptors and HAWK and NIKE-HERCULES missile battalions were moved to the southeast to supplement local air defense forces. After October 22, interceptor units were either on patrol missions or on a 5-to-15-minute alert.

The general purpose forces of the Army, Navy, and Air Force started to organize for the emergency on October 16. The command organization, as finally developed, called for the Commander in Chief, Atlantic (CINCLANT), to provide the unified command. He also retained control of all naval components involved in tactical operations, as the Commander of the U.S. Fleet, Atlantic. The responsibility for Army and Air Force components was assigned to the Continental Army Command (CONARC) and the Tactical Air Command (TAC) under the designation of Army Forces, Atlantic (ARLANT), and Air Forces, Atlantic (AFLANT). The commander of the Army XVIII Airborne Corps was designated Joint Task Force Commander to plan for any joint operations that might become necessary. Over-all direction was exercised by the President and the Secretary of Defense through the Joint Chiefs of Staff, who named the Chief of Naval Operations as their representative for the quarantine.

The operational control of the quarantine force was assigned to the Commander of the Second Fleet, who organized Task Force 136 for this purpose. Effective deployment constituted a mammoth task to be accomplished in minimum time. To prevent future difficulties, plans had to be developed, ship captains briefed, supply ships dispatched, and thousands of details checked. Other Navy and Marine forces faced similar tough schedules. Marines, if not already engaged in landing exercises, were loaded on amphibious ships and ordered to sea. At Guantanamo, dependents were evacuated to the United States on October 22, and Marine units were shipped by air and sea to reinforce the base. Task Force 135, including the carrier *Enterprise*, was sent to the south of Cuba, ready to join in the defense

of Guantanamo if needed. The carrier *Independence* and the supporting ships of Carrier Division Six stood by to provide additional support. Antisubmarine forces were redeployed to cover the quarantine operations. An intensive air surveillance of the Atlantic was initiated, keeping track of the 2,000 commercial ships usually in the area; regular and reserve Navy aircraft were joined in this search by SAC bombers.

Major elements of the Strategic Army Corps (STRAC) were designated for use by ARLANT and placed in advanced alert status. Logistic support for the more than 100,000 men involved was directed by a newly established Peninsula Base Command. Preparatory steps were taken to make possible the immediate callup of high priority Army National Guard and Army Reserve units. Air support for the ground forces was provided by the TAC, which moved hundreds of tactical fighter, reconnaissance, and troop carrier aircraft to the southeast. To make room for all these units, the bombers, tankers, and other aircraft not required for the current operations were ordered to other bases in the United States.

This massive movement of ships, aircraft, and troops, together with their weapons and equipment, was carried out with unprecedented speed. The forces alerted were ready for their assignment when the President addressed the Nation on the evening of Monday, October 22. Low altitude reconnaissance flights over Cuba started on October 23. When the Quarantine Proclamation became effective at 10:00 a.m. (EDT) on October 24, air and surface units of the Atlantic Fleet were at their designated stations. Whether or not other units would be called upon to carry out their operational missions remained an unanswered question throughout this week of maximum danger.

Photographic intelligence continued to show a rapid buildup of offensive weapons in Cuba. The construction of permanent sites for intermediate-range ballistic missiles was noted, in addition to the deployment of the mobile medium-range type. On the other hand, the potentially dangerous confrontations inherent in the quarantine failed to develop. On October 25, the first Soviet ship, the tanker *Bucharest*, was intercepted without incident and permitted to proceed after it was determined without boarding that it carried oil and no prohibited material. On the same day it was confirmed that other Cuba-bound Soviet ships, likely to require closer inspection, had changed course, possibly to return to their home ports. On October 26, the freighter *Marucla*, flying the Lebanese flag but chartered by the Soviet Government, was boarded and cleared after a brief inspection. Tension increased on October 27, when a U-2 aircraft, piloted by Maj. Rudolf Anderson, Jr., USAF, was destroyed. Later in the day, the Secretary of Defense asked the Air Force to call 24 troop carrier squadrons and their supporting units to active duty, involving about 14,000 Air Force Reservists.

The break in the crisis came on Sunday, October 28, when the Soviet Government finally agreed to dismantle its offensive weapons in Cuba and return them to the Soviet Union subject to United Nations verification. If this pledge were carried out, additional military actions would become unnecessary. Quarantine measures and aerial surveillance, however, remained in effect. They were suspended temporarily only for 2 days, October 30 and 31, while the Secretary General of the United Nations was trying unsuccessfully to reach an agreement with the Cuban Prime Minister on verifying the removal of offensive weapons. While decreased activity at the missile sites was noted on October 29, it was not until November 2 that it could be announced that the dismantling of the weapon systems had definitely been started. During the following days, aerial reconnaissance provided detailed information not only on the progress made in this work but also on the transfer of the missile systems to Cuban ports and the loading of 42 missiles and their support equipment on eight Soviet ships. These ships sailed between November 5 and 9, and a final visual check was made as each of them passed the quarantine.

Still unresolved, however, was the future of 42 IL-28 medium-range bombers. Their removal entailed further diplomatic negotiations that were not concluded successfully until November 20. The return of these bombers to the Soviet Union was checked as carefully as that of the missiles. All of them left Cuba on December 5 and 6, loaded on three Soviet ships.

Concurrently with the Soviet commitment on the IL-28's, the United States Government announced the end of the quarantine effective at 6:45 p.m. (EDT), November 20, 1963. Fifty-five Cuba-bound merchant ships had been checked during the 4-week quarantine; none was found to carry any prohibited material. With the end of the quarantine, the ships of Task Force 136 as well as those of the more recently formed Inter-American Quarantine Force, composed of Argentinian, Dominican, Venezuelan, and United States units, returned to normal duties. The special alert activities of our armed forces at home and abroad gradually were reduced, and the units no longer required were returned to their permanent stations. The Air Force Reserve units called to active duty were released by the end of November, and the extension of tours of duty for Navy personnel, ordered on October 24, was canceled. Only aerial reconnaissance sorties were continued, since the on-site verification of the removal of all offensive weapons, originally agreed upon by the Soviet and the United States Governments, continued to be opposed by Cuba.

The Cuban crisis demonstrated the readiness of our armed forces to meet a sudden emergency. It also highlighted the importance of maintaining a properly balanced Defense establishment, including not only retaliatory forces of overwhelming strength but also ade-

quately trained and equipped units in sufficient numbers for lesser types of action. This military flexibility was a major factor in bringing about the removal of a dangerous threat to the security of the United States. While our armed forces carried out their assignments well, numerous lessons were learned, insuring that any future emergency will be met with even greater efficiency. The officers and men, both regular and reserve, who participated in the Cuban operation and, above all, the Navy, Marine, and Air Force pilots who collected the hard intelligence required for a successful national policy rendered an outstanding service to their country.

Assistance to Vietnam

Less dramatic but even more hazardous has been the task assigned to U.S. military personnel on duty in Vietnam. By the end of the fiscal year, about 14,000 men were assisting the Vietnamese Government in its struggle against Communist subversion. Under the direction of the Military Assistance Command, Vietnam (MAC/V), a unified command subordinate to the Commander in Chief, Pacific (CINCPAC), they were providing training, airlift, communications, and advice to Vietnamese forces and administering an extensive military assistance program. The principal objective of these efforts was to help the people of Vietnam to maintain their independence and the territorial integrity of their country.

The United States substantially increased its assistance to the Vietnamese Government in 1961 after Communist guerrillas, directed and supported by North Vietnam, had stepped up their campaign of terror, propaganda, and armed attack. As a result of careful field studies, it was determined that the objective of helping the Vietnamese win their war involved not merely standard training in counterinsurgency operations and in the use and maintenance of U.S. material, but also advice in the field on the best tactics to be employed and the most effective use in combat of the weapons and equipment furnished. Unfortunately, this extended type of assistance has also been accompanied by U.S. casualties. Between January 1, 1961, and July 1, 1963, 48 members of the U.S. armed forces died as the result of hostile actions and 210 were wounded. These men as well as their companions who risk their lives day after day deserve the deep gratitude of all Americans.

In order to express this gratitude, the President authorized the award of the Bronze Star medal to U.S. military personnel serving with friendly troops in engagements against opposing forces with which the United States is not at war. He also requested the Congress for authority to award our highest combat decorations, including the Medal of Honor, for heroism in cold war actions. The Congress ap-

proved the President's proposal and, in addition, authorized the presentation of Gold Star lapel buttons to the next of kin of members of the armed forces who lose their lives in cold war incidents.

Military assistance to Vietnam, besides providing combat training and advice, has also proved helpful in many related areas. It has been applied to the construction of strategic fortified hamlets, designed to protect Vietnamese farmers against Vietcong attacks and against levies on their resources. It has been used for training militia and paramilitary forces for the static defense of these hamlets, thus freeing regular units from such duties and making it possible for them to seek out and destroy the enemy. It has supported numerous forms of "civic action," designed to improve the living standard of the local population with the help of military personnel. As a result, the Vietnamese as well as our own armed forces are gaining increased experience in dealing with the multitude of problems connected with counterinsurgency operations.

Frequent conferences of responsible U.S. officials have assured the closest possible coordination between Washington and the field and have greatly expedited the implementation of the program. As a result of our help, local resistance is being bolstered, and weapons and equipment for countering Vietcong aggression are becoming available in steadily increasing quantities. Progress will depend to a large degree on the continued determination of the Vietnamese people to resist Communist tyranny. The battle of Vietnam is a battle for men's minds. The full recognition of this fact and its implications is essential for eventual success.

Nuclear Testing

In response to the resumption of atmospheric nuclear testing by the Soviet Union on September 1, 1961, the United States started underground testing in Nevada 2 weeks later and atmospheric tests in the Pacific on April 25, 1962. The latter series, known as Operation DOMINIC, were concluded on November 4, 1962, after 36 nuclear devices were tested, including 29 dropped from aircraft, 5 high altitude detonations, and 2 weapon systems tests. All of the Pacific Ocean tests were carried out jointly by the Atomic Energy Commission and the Department of Defense through Joint Task Force 8.

These tests contributed substantially to our nuclear weapons program. Two complete weapon systems, the POLARIS missile and the ASROC antisubmarine rocket, were fired under operational conditions, confirming the reliability of these weapons. Tests of warheads designed after the 1958 test series verified the soundness of new designs. Valuable information was obtained on new theoretical concepts for increasing yield per pound of weight, achieving a more efficient use of nuclear materials, reducing radioactive fallout, and

improving the safety and reliability of weapons. High altitude effects tests provided additional data on the ability of our retaliatory and continental defense forces, including our communications systems, to operate in a nuclear environment.

In general, the 1962 test series conducted by the United States confirmed the effectiveness of the existing weapons and pointed the way toward further improvements. While the Soviet Union also gathered considerable information from its two test series, held from September to November 1961 and from August to December 1962, it was concluded after a careful analysis that the nuclear superiority of the United States was not overtaken by the Soviet tests. This factor was one among many that encouraged President Kennedy to try once more to halt the increasing pace of the arms race. On June 10, 1963, he announced that direct negotiations on a test ban treaty were being resumed by the United States, the United Kingdom, and the Soviet Union, and less than 7 weeks later, on July 25, a draft treaty banning nuclear tests in the atmosphere, in outer space, and under water was initialed by the three governments.

This treaty will not alter the nuclear superiority of the United States over the Soviet Union. To assure the continued adequacy of our military arsenal, atomic laboratories will maintain an active research and development program, and underground tests, which are permitted under the treaty, will provide essential data for further weapons improvements. To counter any disadvantages that might result from a sudden unilateral abrogation of the treaty by the Soviet Union, the United States will maintain a periodically up-dated readiness-to-test program, making possible the initiation of atmospheric tests within the shortest possible time. In addition, a substantial effort will continue to be made to improve our capabilities to detect and identify nuclear tests in any environment.

Our nuclear test policy, like the actions taken concerning Cuba and Vietnam, illustrated once more the close integration that has been developed within the Federal Government of all activities related to our security. Military strength is a prerequisite for an effective national policy, but it does not constitute an end in itself. It is most useful when it can provide the President with a wide range of alternative actions in his constant search for the best means to protect the Nation's interests and security. The military programs established during the past 2 years have greatly assisted in meeting this requirement.

II. Operational Forces

Current defense programs call for armed forces of sufficient strength and flexibility to respond quickly to any type of aggression with whatever degree of force is needed. The framework for such a military establishment was outlined in 1961, and the first steps toward the new objective were taken during fiscal year 1962. Fiscal year 1963 brought us considerably closer to the established goals, particularly through a greatly accelerated modernization of weapons and equipment. (See tables 1 and 2.)

Active duty military personnel totaled 2,700,000 on June 30, 1963. This total represented an increase of 216,000 over that on June 30, 1961, but a decrease of 108,000 as compared to the military personnel strength on the same date in 1962. The high 1962 level was caused by the temporary retention on active duty of reserve forces mobilized during the Berlin crisis in the fall of 1961. A strength level slightly below 2,700,000 is planned for the immediate years ahead.

The chain of command for the operational direction of the armed forces—from the President and the Secretary of Defense through the Joint Chiefs of Staff to the unified and specified commands—remained unchanged, but some adjustments were made in the structure of the unified and specified commands. On June 6, 1963, the Caribbean Command, with headquarters at Quarry Heights, Panama Canal Zone, was renamed the U.S. Southern Command to indicate more accurately its broad geographical responsibilities for the southern part of the Western Hemisphere. After the close of the fiscal year, the commander of the U.S. Strike Command was directed to assume additional duties as Commander in Chief, Middle East, Africa, and Southern Asia (MEAFA). U.S. Naval Forces, Eastern Atlantic and Mediterranean, a specified command located at London, was disestablished.

Also reporting through the Joint Chiefs of Staff are three agencies carrying responsibilities closely related to operational control—the Defense Atomic Support Agency (DASA), the Defense Intelligence Agency (DIA), and the Defense Communications Agency (DCA). DASA played a major role in the atomic tests conducted during 1962.

DIA, established in August 1961, extended its activities as planned from the current intelligence field into the intelligence production area, assuming operational control of the Air Force Production Center in January 1963 and of counterpart Army and Navy elements a month

later. The agency was also assigned responsibility for establishing and operating a joint Defense Intelligence School, for exercising management control over the mapping, charting, and geodetic efforts of the military Services, and for supervising technical intelligence activities. Thus, during fiscal year 1963 DIA steadily increased its capacity for providing effective intelligence support to Washington headquarters and the major military commands.

DCA, which became operational in March 1961, further augmented its capability during fiscal year 1963 for meeting the long-haul, point-to-point telecommunications requirements of the armed forces. Additional facilities were interconnected to provide greater flexibility, new channels were provided in areas that had been inadequately served, and duplicating circuits and switching points were consolidated to eliminate unnecessary redundancy. The effective monitoring of communications traffic was improved with the activation of six small regional communications control centers to supplement the national control center and the four key regional centers. Thus, substantial progress was made toward the goal of a single Defense Communications System that will satisfy the needs of all Defense users with maximum efficiency and economy. The agency was also assigned during the year new responsibilities for operating the military damage assessment system—formerly a responsibility of DASA—for assuring the compatibility of ground and space-borne equipment for military communications satellite programs, and for developing and supporting the National Military Command System. The National Military Command System includes not only the facilities in Washington but also alternate command posts—underground, airborne, and afloat—and the links to field headquarters. This system is designed to be ready for operations around the clock and provides national authorities with a secure and survivable means for the strategic direction of our armed forces in any circumstances.

Retaliatory Forces

The program, initiated in 1961, for accelerating the buildup of our retaliatory forces and for increasing their survivability remained on schedule during fiscal year 1963. By June 30, 1963, about 500 ICBMs and POLARIS missiles were operational. The emergency readiness of the manned-bomber elements showed further improvement. As before, there was no question during fiscal year 1963 that our strategic retaliatory forces were fully capable of destroying the Soviet target system, even after absorbing an initial surprise attack. The programs planned for the further improvement of these forces will insure that the United States retains this capability in the years ahead and that a convincing deterrent to a nuclear attack on our country is maintained.

In building up its missile forces, the Department of Defense has placed major emphasis on the solid-fueled MINUTEMAN and POLARIS missiles. The first two MINUTEMAN flights were turned over to the operational control of the Strategic Air Command in December 1962 and by the close of the fiscal year a total of 160 missiles were in place. These highly reliable missiles, emplaced in dispersed, hardened underground silos, are maintained ready for almost instantaneous launching in the event of an enemy attack. The number of operational POLARIS missiles rose from 96 to 144 during the year as the ballistic missile submarine force deployed at sea increased from six to nine. On June 30, 1963, three additional POLARIS submarines were in commission but had not yet joined the fleet.

As for liquid-fueled ICBMs, the program for 13 ATLAS squadrons, aggregating 126 missiles, was completed during the fiscal year as 6 ATLAS-F squadrons became operational between September and December 1962. The TITAN program also progressed as planned. TITAN I squadrons increased from four to six and the first of six TITAN II squadrons, equipped with storable fuel, entered the operational inventory. All of the 12 programmed TITAN squadrons, with 108 missiles on launchers, were scheduled to be operational at the close of calendar year 1963.

The striking power of our strategic bomber force is being increasingly concentrated on the 14 wings of B-52 heavy bombers and the 2 wings of B-58 supersonic medium bombers. Seven of the 20 wings of B-47 medium bombers, procured in the late 1940's and early 1950's, were phased out of the force structure during the past 2 years as additional strategic missile units became available. Half of our bomber force is being kept on 15-minute ground alert with a small number on airborne alert, and spare parts have been acquired to fly, if necessary, one-eighth of the B-52 force on airborne alert for about 1 year. The in-flight refueling capabilities of our bombers improved during fiscal year 1963 with further deliveries of KC-135 jet tankers, and the increased inventory of HOUND DOG air-to-surface missiles added to their stand-off-attack and penetration potential.

The SKYBOLT project for an air-to-surface ballistic missile, designed to replace the aerodynamic HOUND DOG, was canceled in December 1962. This missile turned out to be considerably more expensive to develop and produce than had been anticipated as serious technical difficulties were encountered. In addition, it was overtaken by the successful development of other weapons that could carry out the task of suppressing enemy defenses at substantially lower cost. As a result, SKYBOLT lost its status as a vital defense requirement, and its marginal contribution to our national security provided insufficient justification for its high cost.

The 5-year program for our retaliatory forces calls for the retention through the 1960's of a mixed force of bombers and missiles with the proportion of missiles steadily increasing. Survivability and reliability will continue to receive primary emphasis. Major reliance will be placed on the MINUTEMAN and POLARIS, both of which pose extremely difficult targeting problems for an enemy. As greater numbers of these weapons are deployed, some of the older, more vulnerable ATLAS and TITAN missiles will be phased out of the inventory.

The MINUTEMAN program, as funded through the fiscal year 1963 budget, provides for a total of 800 MINUTEMAN I missiles, to which the fiscal year 1964 program added 150 MINUTEMAN II missiles. The great improvements in range, accuracy, and flexibility in targeting and launching offered by the new MINUTEMAN model led to a review of the entire program after the close of the fiscal year, and it was concluded that the replacement of MINUTEMAN I with MINUTEMAN II missiles earlier than previously planned would enhance the over-all effectiveness of the force, although accompanied by a slight reduction in the buildup rate. At the same time, work is continuing to provide further improvements in propulsion, structure, and guidance as well as in the field of penetration aids designed to confuse enemy defense. A study of new advanced ICBM concepts was initiated in fiscal year 1963, and the development of a Medium-Range Ballistic Missile (MRBM) system for possible use in the NATO area was also continued.

The planned POLARIS program remained at a total of 41 submarines. The last six of these were fully funded in the fiscal year 1964 budget. The acceleration and expansion of the POLARIS program, ordered in 1961, will result in dramatic increases in the size of the POLARIS fleet during the next few years. While 9 POLARIS submarines were deployed with the fleet on June 30, 1963, and 3 more had been commissioned, an additional 11 had already been launched, 12 more were under construction, and long leadtime items were being procured for the remaining 6. The increase in the striking power of this submarine fleet will be even greater than its numerical increase. Submarines 19 through 41 will be equipped with the A-3 missile which has a range of 2,500 nautical miles, and the same advanced missile will replace the 1,250 nautical mile A-1 model, currently on board the first 5 vessels. Submarines 6 through 18 will be equipped with the 1,500 nautical mile A-2 version. Thus, the POLARIS fleet, as currently planned, will consist ultimately of 28 submarines with A-3 missiles and 13 with A-2's. Further improvements of the A-3 model are under intensive study.

As for the strategic bombers, the B-52's and B-58's will be maintained at about their current strength level throughout the 1960's. The B-47's are scheduled to be phased out of the inventory. The continued effectiveness of the B-52 force is being assured by an extensive modification program, including the structural strengthening of the aircraft, as well as by the addition of new equipment. These modifications also enhance the ability of the B-52's to carry out new tactical concepts. Further delays were encountered in the development of the XB-70 hypersonic aircraft as a result of technical difficulties encountered in sealing the fuel cells and in fabricating the wing fuselage joint. Continued research, however, is expanding the technological base for the design of more advanced aircraft, the need for which is under constant review.

Continental Defense

Operational responsibility for continental defense is vested in the North American Air Defense Command (NORAD), a combined U.S.-Canadian command with headquarters at Colorado Springs, Colo. Composed of elements from the U.S. Army, Navy, and Air Force and from the Royal Canadian Air Force, NORAD coordinates and directs the activities of about 175,000 people. Its major components include early warning, command, control, and communications systems, manned aircraft and surface-to-air missiles, the Ballistic Missile Early Warning System (BMEWS), and the Space Detection and Tracking System (SPADATS).

Continued progress was made during fiscal year 1963 in practically all continental defense activities. Primary emphasis was placed on improving the survivability of our existing system in case of missile attack and on developing an antimissile missile that might provide an effective defense against long-range enemy missiles. In addition, NORAD forces were realigned during the year to furnish greater protection for the southeastern United States, as the temporary assignment of additional aircraft and air defense missiles to that area at the time of the Cuban crisis was subsequently made permanent.

Adjustments in our defense against enemy bombers were made in response to rising enemy missile capabilities which posed an increasing threat to the Semi-Automatic Ground Environment (SAGE) facilities, constructed without protection against missile attack and frequently located near prime target areas. Since it would have been practically impossible to harden these facilities—designed to detect, identify, and direct the interception and destruction of enemy bombers—substitute measures had to be taken. As a first step, manual direction equipment was installed in fiscal year 1962 at a number of prime radar sites to enable these stations to identify enemy aircraft and direct our interceptors against them without any help from

SAGE. Additional communications links were also established, and fallout protection and shielding was being provided for the crews. These emergency measures were followed, starting in fiscal year 1963, by the introduction of a more effective, computerized Back-Up Interceptor Control (BUIC) system at stations located outside of possible prime target areas. With these developments, reductions in the SAGE system became feasible. Six of the 21 SAGE direction centers originally programed were selected for deactivation, and more are expected to be phased out when the BUIC system becomes fully operational.

A reexamination of the requirements for search radars resulted in a decision to eliminate 23 existing sites and establish 16 new ones, for a net reduction of 7. To provide more effective surveillance, responsibility for the Greenland and Iceland-United Kingdom extension of the DEW line was shifted from radar picket ships to aircraft during the fiscal year.

As for manned interceptors, greater protection has been provided by increasing to one-third the proportion of aircraft on 15-minute alert or less and by preparing additional airfields for dispersed operations. The dispersal program when completed will make it possible to deploy one-fourth of the interceptors away from their home bases. No major numerical changes occurred or were planned in the composition of continental defense interceptor units of the active Air Force—composed of all-weather F-101's, F-102's, F-104's, and F-106's. The effectiveness of Air National Guard units will be upgraded as F-102's from the active forces replace the older models currently available. The problem of further modernizing our manned interceptor force was submitted to careful review during the past year, and the results indicate that possible future bomber threats might be countered in several different ways, including aircraft already in production or under development as well as a completely new interceptor (IMI). Determination of the proper course to follow will depend on further information concerning, among other factors, the particular nature of the enemy bomber threat in the years ahead. Meanwhile, research and development work is being continued on all various systems that might be used.

Changes in the air defense missile field included the permanent assignment to NORAD of one NIKE-HERCULES battalion and two HAWK battalions, temporarily moved to the Florida area during the Cuban crisis. The transfer of NIKE-HERCULES missiles from the active Army to the National Guard to replace the NIKE-AJAX continued as planned with the objective of retiring all AJAX missiles in the near future. Plans are also being developed by the Air Force to eliminate BOMARC-A missiles, which lack a low altitude capability

and have a range of only 200 miles; the more versatile 400-mile-range BOMARC-B will be retained at six bases.

In the field of ballistic missile defense, the BMEWS constitutes our primary source for advance warning of an attack. It represents an investment of about \$1.0 billion. Of the three BMEWS stations, the ones at Thule, Greenland, and Clear, Alaska, were in operation during the past fiscal year, while the one at Fylingdales, England, was scheduled to start operating before the end of calendar year 1963. The addition of a new tracking radar at Thule and the installation of improved electronic countermeasures substantially increased the system's capabilities. Various other improvements are under study, including the development of over-the-horizon radar, which could provide earlier information on missile attacks and additional confirmation of the data gathered by BMEWS. As successor to the Bomb Alarm System, designed to relay information on nuclear detonations in the NORAD area, an improved Nuclear Detection and Reporting System (NUDETS) is being tested. The new equipment would furnish automatically much additional information to military as well as civil defense authorities for purposes of damage assessment and fallout prediction.

The program for the development of an antimissile weapon was re-oriented in fiscal year 1963 to incorporate improvements essential for an effective defense. The newly established NIKE-X development will include three features that had not been planned for its predecessor, the NIKE-ZEUS. First, the new high-acceleration SPRINT missile will, with its speed, provide additional time for discriminating between warheads and decoys. Secondly, the proposed Multifunction Array Radar (MAR) will have the capability to detect and track a large number of objects simultaneously. And finally, the components of the system can be sufficiently hardened to make a direct attack on these defense facilities unprofitable. The development contract for SPRINT was awarded in March 1963, and work was started on the construction of a prototype MAR. Continuing tests of the NIKE-ZEUS provided additional information on reentry phenomena and defense techniques, and the successful interception from Kwajalein Island of test vehicles launched 5,000 miles away by ATLAS and TITAN boosters demonstrated the basic soundness of the ZEUS equipment. Scientific research covering many aspects of the missile defense problem is being carried forward under Project DEFENDER, administered by the Advanced Research Projects Agency. Considerable effort is also being expended on improving our capabilities to counter submarine-launched missiles, while advanced methods to detect, track, and destroy enemy submarines are being studied as part of our over-all antisubmarine warfare program.

The resolution of technical problems, however, can not by itself determine the eventual deployment of an antimissile defense system. Its potential effectiveness must be weighed against many additional factors, including the degree of protection provided against various types of attack, the cost of deployment to the United States in comparison with the cost to an aggressor developing means to penetrate the new defenses, and, above all, the extent to which the system is backed up by an adequate civil defense shelter program to reduce the loss of American lives. A careful evaluation of strategic and economic considerations of this type is essential before a final decision on deployment can be reached. Our immediate objective, however, is to pursue the development of the NIKE-X system with highest urgency. Success in this undertaking should provide more of the information required for reaching a sound judgment.

Civil Defense

Further substantial progress was made during fiscal year 1963 in locating, marking, and stocking fallout shelters for emergency use. The rate of progress in providing such shelters for all Americans is, however, falling short of established objectives, particularly through the delay in the authorization of Federal financial assistance in the construction of shelters in schools, hospitals, and other nonprofit institutions. The civil defense program constitutes an integral part of our national security policy and, as such, merits the full support of the American people.

First among the civil defense objectives is the program for establishing over the next 5 to 6 years 240 million shelter spaces—a requirement that takes into account the daytime and nighttime distribution of population, particularly in urban areas. About 90 million of these spaces are expected to be located through the national shelter survey. Shelter construction in Federal buildings can provide 5 million additional spaces. Current studies indicate that the remaining 55 million might be obtained through the private initiative of homeowners and business organizations. The remaining spaces are planned to be incorporated into selected public and institutional buildings with the help of payments by the Federal Government.

The most encouraging progress during fiscal year 1963 was made in the national shelter survey phase of the civil defense program. An expansion of the survey was made possible as a result of technical studies indicating that the minimum protection factor could be lowered without undue risk from 100 to 40—that is, fallout radiation within shelters might be reduced from one-hundredth or less to one-fortieth or less of that outside. The revised standard opened up additional shelter space, especially in less populated areas where heavily con-

structed buildings with basements are scarce, and thus contributed to a better geographical distribution of shelters. In line with this criterion, the total number of potential spaces located rose to 104 million. It is estimated that about 70 million of these spaces can be licensed as public fallout shelters; an additional 20 million are expected to become available during the next few years through new construction and building modifications.

By the close of fiscal year 1963, owners of more than 50,000 buildings and other protective facilities had signed agreements that made emergency accommodations available for 47 million people. With the cooperation of State and local authorities, shelters for 43 million had been marked with distinctive signs. In addition, emergency supplies had been stored for nearly 10 million people in about 21,000 facilities—at an average cost to the Federal Government of \$2.42 per person. With the procurement actions initiated during the year, the emergency stocks delivered or on order will take care of 50 million shelter spaces.

The program for encouraging local authorities and nonprofit institutions to add shelter space to new and existing buildings by providing Federal assistance failed to receive congressional approval. Neither the request for \$460.0 million in the fiscal year 1963 budget nor that for \$175.0 million in the 1964 budget was authorized, although 90 million spaces might eventually become available under this program at a maximum cost to the Federal Government of only \$2.50 per square foot. It is hoped that further hearings and analyses by congressional committees will continue to demonstrate the value of this important phase of the national shelter program.

Substantial progress in the construction of shelters in Federal buildings is awaiting the removal of certain legal restrictions enacted. Because of these restrictions the bulk of the \$17.5 million previously made available for this purpose was not used. In the meantime, however, detailed plans have been developed that will make possible the rapid modification of existing Federal buildings for shelter space when the current obstacles are removed, and provisions for protective accommodations have been included in new construction designs.

To encourage home owners and business organizations to construct shelters on their own initiative, an extensive information and training program has been established, and Federal research and development projects are providing additional technical data on the most effective procedures to follow.

Supplementing the shelter program, a major effort was being made to strengthen the foundations required for a sound civil defense program. This included general research, shelter support programs, and further development of warning communications, radiological monitoring, and damage assessment systems.

More than 1,080,000 persons received civil defense instruction during the year, including 788,000 who were trained in medical self-help, 278,000 who registered in the civil defense adult education program, about 10,000 architects, engineers, and builders who participated in shelter construction workshops and training programs, and more than 4,000 key civil defense personnel who completed courses in civil defense schools. Substantial assistance was also given to State and local governments to assist them in carrying out their vital role in the over-all effort. A detailed account of all civil defense activities during the year is attached as Annex C to this report.

Primary responsibility for the civil defense program was transferred to the Department of Defense in August 1961 and assigned to the Office of Civil Defense (OCD), established as a separate civilian component of the Department. This arrangement has fostered closer cooperation between military and civil defense activities in planning an effective program and has greatly contributed to more efficient operations. For example, the Defense Supply Agency manages the procurement, storage, and wholesale distribution of shelter supplies; the Defense Communications Agency supervises the integration of civil defense communications with military circuits; the Army Corps of Engineers and the Navy Bureau of Yards and Docks assisted in the location of shelter spaces; and the reserve components of the armed forces encouraged Standby Reservists to accept assignments with local civil defense organizations. Moreover, the civil defense responsibilities of the armed forces in the event of nuclear attack were revised and clarified by a directive issued by the Secretary of Defense in April 1963. Under this guidance, active and reserve units not required for offensive or defensive operations will be used to assist local authorities in coping with emergency situations.

As stated earlier, a substantial increase in our national security can be achieved by further progress in the civil defense program. It deserves the unqualified support of the American people.

General Purpose Forces

The buildup of our general purpose forces, in accordance with programs initiated in 1961 and subsequently expanded, is providing the United States with the ready strength required to counter all types of military aggression short of a major nuclear war. As a result, the United States has acquired a wider choice in the courses of action to follow in an emergency and, at the same time, potential aggressors have been given further warning against launching military ventures.

Emphasis has been placed on increasing readiness and mobility and on providing modern equipment, weapons, and munitions in sufficient quantities to maintain the existing forces in sustained combat. Qualitative improvement has been stressed rather than numerical

expansion. Nuclear capabilities have been supplemented with a substantial increase in nonnuclear striking power and, in the counterinsurgency field, all the Services have developed special warfare units, thoroughly trained to assist friendly countries in countering Communist subversion.

Army

The Army continued to make major strides in fiscal year 1963 in building up its personnel strength, modernizing its equipment, and improving its battlefield mobility.

Its active duty strength, which had been set at 870,000 for fiscal year 1961, was raised to 960,000. In addition, an overstrength of 20,000 men was temporarily authorized for end fiscal year 1963 to reduce the hump in future training requirements caused by the quick expansion during the 1961 Berlin crisis, and another temporary increase of 15,000 was granted to test new concepts of air mobility. Actual Army strength on June 30, 1963, totaled 976,000 as compared to 859,000 2 years earlier and 1,066,000 at the close of fiscal year 1962, when two National Guard divisions and a large number of reservists were temporarily on active duty.

With a permanent increase of 90,000 men, the Army's divisional strength was raised from 11 combat-ready divisions and 3 training divisions to 16 combat-ready divisions. This expansion benefited above all the Army's strategic reserve in the continental United States, which now includes eight, instead of three, combat-ready divisions—an increase of about 170 percent. The oversea deployment of Army divisions remained unchanged during the year with five stationed in Europe and two in Korea, with one more in Hawaii as a theater reserve.

All these divisions are being provided with greater firepower and improved tactical mobility. The divisional structure is being changed from the former pentomic pattern to the new ROAD concept, providing greater flexibility. This organizational change also affects nondivisional units, as infantry battle groups are being eliminated and the number of ROAD brigades increased. The ROAD reorganization is scheduled to be completed by the end of fiscal year 1964.

Equally important has been the quantitative and qualitative improvement in Army weapons and equipment accomplished in recent years. The funds made available for the procurement of such items were raised from \$1.5 billion in fiscal year 1961 to \$2.5 billion for 1962, remained the same for 1963, and were increased to \$3.0 billion for 1964. As a result, the Army's stock position has been improved considerably compared with that existing at the time of the 1961 Berlin crisis. In this buildup, the most urgent requirements have been first to remedy the most serious shortages and then to procure those modern weapons and equipment that promise the greatest increase in combat

effectiveness in relation to their cost. The established procurement objective is to have 22 divisions—16 active and 6 reserve divisions—adequately equipped and supported for combat for the entire period between D-day and the time when production lines are expected to catch up with combat consumption.

The modernization of Army weapons includes practically all types. Liquid-fueled surface-to-surface missiles, like the medium-range CORPORAL and the longer range REDSTONE, are being replaced by solid-fueled SERGEANT and PERSHING missiles. Still in the research and development stage are new air defense, antitank, and short-range surface-to-surface missiles. Substantial progress has been made in developing the Army's air capabilities with the delivery of new helicopters and fixed-wing aircraft for battlefield transport and surveillance. Rifles and machineguns are being modernized. A significant increase in firepower is being provided by a new family of self-propelled artillery. While existing deficiencies in tank requirements are being removed, a new improved main-battle tank has been placed under development. Similar modernization programs are under way for many other weapons and types of equipment.

As a further step to improve the Army's combat effectiveness, the so-called Howze Board on Tactical Mobility Requirements recently developed new tactical concepts calling for the creation of air assault divisions and air cavalry as well as air transport brigades. In view of the radical changes in equipment and tactical doctrine inherent in these proposals, the new concepts are being submitted to thorough field tests and evaluations carried out by provisional units especially organized for this purpose. These tests should provide essential information on the military effectiveness and cost of the new proposals and permit meaningful comparisons with alternative programs.

Navy and Marine Corps

While no major changes were made during fiscal year 1963 in the composition of Navy and Marine Corps forces, their striking power increased with the continued delivery of more modern weapons and equipment. Simultaneously, an intensive research effort has been going forward to develop still greater combat effectiveness in the years ahead, and long-range plans for maintaining our substantial naval supremacy have been submitted to a thorough review to determine the best solution to the many problems raised by the so-called "block obsolescence" of naval ships.

The personnel strength of the Navy rose from 627,000 on June 30, 1961, to 665,000 2 years later and the number of ships operated by the Navy from 819 to 857, including an increase in major combatant warships from 375 to 383. Comparison of the 1963 totals with those of 1962—666,000 men and 900 ships, including 397 warships—provides a less accurate indicator of the development of the permanent naval

establishment, since the 1962 figures include reserve personnel and reserve ships activated during the 1961 Berlin crisis and subsequently released.

These numerical comparisons fail to reveal the qualitative improvement in the fleet during the past 2 years. The number of attack carriers was the same in 1963 as in 1961—15—but the 1963 total includes the nuclear-powered *Enterprise* and two new *Forrestal*-type carriers, the *Kitty Hawk* and the *Constellation*. In the cruiser and destroyer categories, the number of guided missile ships has been considerably increased, including a nuclear-powered cruiser, the *Long Beach*, and a nuclear-powered frigate, the *Bainbridge*. The submarine fleet has been strengthened with delivery of additional nuclear-powered attack submarines. The Navy's ship construction program, which included only 25 new ships in the fiscal year 1961 budget, provided for 36 new ships in the 1962 as well as the 1963 budget, and a total of 31 new ships was approved by the Congress for fiscal year 1964.

The delivery of additional Skyhawk, Intruder, and Vigilante attack aircraft and Phantom fighters has strengthened the striking power of naval and Marine aviation. Already under development is the F-111 (TFX), which will eventually replace the Phantom. Improved air-to-air and air-to-ground missiles are increasing the combat effectiveness of these aircraft. The air defense capabilities of the fleet are being raised as more ships acquire TERRIER, TARTAR, and TALOS missiles. Research programs have been established to improve the operational characteristics of these missiles and to develop a new surface-to-air fleet missile system.

In the Antisubmarine Warfare (ASW) field, progress is being made in improving equipment, weapons, and tactics as well as in gaining further knowledge of the scientific problems that remain to be resolved. An extensive program in oceanography has been started. The management of ASW research and development has been reorganized to provide greater efficiency. The range of sonar and radar equipment has been extended and the reaction time of operational forces to submarine contacts greatly shortened. The delivery of more modern aircraft and helicopters and of additional nuclear-powered attack submarines has increased our capabilities to detect and destroy enemy submarines. Still, despite such improvements, the potential threat presented by hostile submarines remains a major one, and the ASW research program is being pursued with the greatest urgency.

The personnel level of the Marine Corps was increased in 1961 from 175,000 to 190,000 to provide the manpower needed for three combat-ready division/wing teams and the nucleus of a fourth team. The necessary adjustments for the implementation of this program were completed during fiscal year 1963 with the reorganization of a sub-

stantial part of the Marine Reserve into the units required for the formation of the fourth division and air wing. Modern weapons and equipment continued to be delivered in increased quantities in accordance with a phased procurement program designed to provide all the material needed to sustain four divisions and air wings in combat for a considerable time. The Marine Corps' amphibious lift capacity has been improved with the commissioning of new amphibious transport and assault ships, the latter especially designed to facilitate vertical assault missions.

A major study was initiated to establish a realistic long-range program for our naval forces, similar to the programs developed for ground and tactical air forces. The key problem to be resolved is the rate of new construction required to maintain our naval supremacy in the late 1960's and thereafter in view of the fact that over half of today's fleet was constructed during or shortly after World War II—almost 20 years ago. The correct answers to the questions raised by this problem will not be easy to find. A massive ship construction program would create another "block obsolescence" dilemma in the future. Ship rehabilitation and modernization might extend the useful life of some combatant types. The greater combat capabilities of modern ships might lower numerical requirements. Changes in weapons technology might call for new types of ships. Whatever the conclusions reached, they will insure that adequate naval power remains available to carry out the essential tasks required for our national security.

Tactical Air Forces

The urgent need for more adequate air support for Army ground forces was recognized in 1961, when it was decided to increase substantially the size of the tactical fighter force, accelerate its modernization, and provide sufficient materiel for sustained operations in a non-nuclear conflict.

The expansion goal of the fighter force, tentatively set at 5 wings or from 16 to 21 wings, had been practically achieved by the end of fiscal year 1963. The speed of this expansion was made possible primarily by holding within the active forces the F-84's brought in by the Air National Guard during the Berlin crisis. Simultaneously, however, procurement programs were greatly accelerated to provide the best available aircraft for the entire fighter force. The delivery in substantial numbers of Phantom F-4C fighters is scheduled for the immediate years ahead, and the F-111 (TFX)—equipped with variable sweep wings and turbofan engines—will provide an even more effective aircraft in the late 1960's. A parallel modernization is planned for tactical reconnaissance aircraft.

The serious shortages in tactical nonnuclear ordnance existing 2 years ago have been substantially reduced. Procurement programs for air-to-surface ordnance and associated materiel were increased from \$49 million for fiscal year 1961 to \$216 million for 1962 and \$244 million for 1963; \$198 million was approved for 1964. Particularly significant expansions were made in the purchase of BULLPUP air-to-surface missiles and cluster bomb units. Substantial progress was made in the development of plans to provide protection for parked tactical aircraft overseas against nonnuclear attack through the construction of earth-covered steel shelters.

Airlift and Sealift

The ability of military forces to counter aggression quickly wherever it occurs is a key factor in measuring their effectiveness. To meet this requirement, we have deployed part of our forces overseas, prepositioned heavy combat equipment in key areas, and maintained a ready airlift and sealift capability for the strategic reserve stationed in the United States. The adequacy of the measures taken has been under intensive review since 1961, when it became evident that existing airlift capabilities fell far short of minimum needs.

As a result, the procurement program for long-range modern airlift aircraft was expanded in 1961 from 50 to 129 aircraft—99 C-130E's and 30 C-135's—and work was started on a new long-range C-141 jet transport. Delivery of the C-135's began in August 1961 and of the newly ordered C-130E's in March 1962; the first C-141 was completed during the summer of 1963. Subsequent procurement programs further increased the order for C-130E's and C-141's. By the end of fiscal year 1963 our airlift capability had been increased by nearly 60 percent over that of 1961, and current plans called for a fourfold increase by 1968.

With these developments, primary reliance for the future airlift of the regular forces will be shifted to the turboprop C-130E's and the turbofan C-141's. Piston engine aircraft, except for some assault transports with rather short takeoff and landing capabilities, will be gradually transferred to Air Reserve and Air National Guard units, which will maintain C-97's, C-119's, and C-124's fully ready for deployment within a 24-hour period. The new transports entering the inventory may also change current concepts of airlift operations, since it may become feasible to have them fly troops and equipment directly to the battle area rather than to oversea assembly points for reloading into assault transports. A comprehensive study of this problem, including the changes that may be required in global communications and control systems as well as in organization, has been started.

Additional airlift support in case of an emergency is provided by the Civil Reserve Air Fleet (CRAF) consisting of nearly 270 aircraft, of which about half are modern jets. The contracts concluded with private airlines contain special incentives for the further modernization of their inventory, thereby expanding their capability for assisting the armed forces when needed.

As for our sealift capabilities, the Military Sea Transportation Service (MSTS) manages a relatively small nucleus fleet wholly and instantly responsive to military needs and providing capabilities not ordinarily available in commercial ships. Increased airlift capacity is reducing the requirement for MSTS troop ships, but cargo ships and tankers, particularly types that can be used in primitive ports and shallow waters, will continue to be required. Qualitative improvements include new roll-on/roll-off cargo ships which require no special booms or cranes for unloading; three such ships have been authorized through fiscal year 1963 and consideration is being given to the construction of a roll-on/roll-off fleet capable of moving an entire armored division. The possibility of further reductions in lift requirements is being tested by the prepositioning of equipment in "floating depots" stationed in forward areas.

Reserve Forces

Improvement in the ability of the reserve components to augment the active forces on short notice and in considerable numbers has been a major objective in recent years. While the reserves continue to provide the base for large-scale mobilization in the event of general war, they render an even greater service to their country by maintaining selected units in a state of maximum readiness. Such readiness makes feasible a lower personnel level for the active forces and greatly increases our ability to meet the many possible contingencies that might threaten the national security. The importance of the mission carried by the reserves was illustrated during the 1961 Berlin crisis when nearly 150,000 Army, Navy, and Air Force reservists were mobilized, and again during the 1962 Cuban crisis when over 14,000 Air Force reservists were called to active duty for 1 month.

The need for modernization was recognized early in 1961, but the Berlin crisis not only delayed the implementation of plans but also pointed up deficiencies in readiness and in recall procedures. Accordingly, the reserve troop structure, particularly that of the Army National Guard and the Army Reserve, was reexamined, and new plans were prepared during 1962. These were discussed at length with interested committees and members of the Congress, with the State Governors, and with representatives of the National Guard and the Army Reserve. On December 4, 1962, the Secretary of Defense and the Secretary of the Army ordered the reorganization plan to be put

into effect, and by May 1, 1963, the necessary preliminary actions had been taken—1 month ahead of schedule and in time for the reorganized units to use their annual 2-week training periods during the summer of 1963 to maximum advantage in adjusting to the new structure.

A major result of the realignment was to increase from 47 to 66 percent the number of Army Ready Reservists serving in high priority units. The new manning and equipment levels of these units will enable them to support the active Army within weeks rather than months after mobilization. Specific features of the reorganization included:

Establishment of a priority force consisting of 6 National Guard divisions and supporting elements, 11 separate brigades, on-site air defense missile battalions, and other reinforcing units from the Guard and the Reserve needed for early operational deployment—manned at 75 to 80 percent of wartime strength and having readiness objectives ranging from a few hours to not more than 8 weeks.

Designation of 2 National Guard divisions and supporting units as theater reinforcements—manned at 70 percent of wartime strength with readiness objectives from 4 to 12 weeks.

Maintenance of an additional 15 National Guard and 6 Army Reserve combat divisions, 13 Army Reserve training divisions, and nondivisional supporting units—manned at 53 to 60 percent of wartime strength with longer readiness objectives.

Realignment of all reserve units to the new ROAD concept currently being adopted by the active Army.

Establishment of qualitative standards for Ready Reservists on drill-pay status equal to those prescribed for the active Army to assure the availability of properly trained personnel in an emergency.

Adoption of new procedures for the recall of units and individual "fillers."

Procurement of additional modern equipment for reserve units, particularly for those designated as high priority.

The reorganization of the Army reserve components involved the elimination of about 1,700 units excessive to current requirements and the activation of some 1,000 new units, including separate brigades and additional special forces companies. Included in the eliminated formations were 8 divisions—4 from the National Guard and 4 from the Army Reserve. Reservists from the disbanded units were encouraged to transfer to the new units, which were established in the same general locations.

The authorized strength levels for paid-drill training of 400,000 for the Army National Guard and 300,000 for the Army Reserve could not be reached during fiscal year 1963. Contributing factors included dislocations resulting from the Berlin mobilization, uncertainties con-

nected with the reserve reorganization, and higher standards for personnel. Despite an intensified recruiting effort, the Army National Guard had only 361,000 in paid-drill training status on June 30, 1963, and the Army Reserve only 237,000. Some increase in strength levels is anticipated during fiscal year 1964, but the authorized total of 700,000 probably will not be achieved, largely because of the relatively small number of men who will become available to the reserves from the active Army and the "6-month" training program.

The realignment of the Navy, Marine Corps, and Air Force reserve components to current mobilization objectives required smaller adjustments than those necessary for the Army. The Navy decided to reorganize its air reserve flying squadrons and units to provide more effective training and greater flexibility in responding to mobilization requirements. The Marine Corps Reserve, as noted above, completed the conversion of most of its training detachments to the tactical-type units needed for the fourth Marine division/air wing team. The Air National Guard began to carry out a program for increasing its airlift and tanker squadrons and reducing the number of air defense units.

Improvements in reserve legislation included the submission of a bill, approved after the end of fiscal year 1963, providing a standard 6-year period of reserve obligation and revising active duty training provisions for new reservists. The new legislation establishes a minimum of 4-month active duty training, eliminating programs which required as little as 8 weeks, and also provides an opportunity for new reservists to volunteer for active duty as long as necessary in order to qualify for positions requiring extensive technical training. The latter provision should help to reduce the need to recall prior-service personnel to fill the "hard skill" positions in reserve units as happened during the 1961 Berlin crisis.

Defense Space Programs

Expenditures for military space programs doubled between fiscal years 1961 and 1963, rising from \$0.7 billion to \$1.4 billion. They constituted 20 percent of the Department's total expenditures for research and development activities in fiscal year 1963. The objectives of the military space effort are: First, to develop and operate space systems that meet clearly defined national security requirements and, secondly, to establish a broad base of technology and experience on which to build such future systems as may eventually prove to offer substantial military utility. Expenditures during fiscal year 1963 were divided almost equally between these two objectives. In addition, Defense space activities benefited greatly from the various space programs assigned to other Federal agencies in accordance with a closely coordinated plan for achieving the goals of our national space policy.

National space objectives are established with the assistance of the National Aeronautics and Space Council. In keeping with the policies of the council, the space activities of the various agencies concerned have been developed into a truly joint effort. An Aeronautics and Astronautics Coordinating Board assures close cooperation between the National Aeronautics and Space Administration (NASA) and the Department of Defense. Agreements concluded between the two agencies during fiscal year 1963 covered such subjects as the extent of Defense participation in NASA's GEMINI project for the development of a two-man spacecraft, Defense support for NASA's synchronous-altitude communications satellite (SYNCOM) program, possible civilian use of the Defense navigational satellite system, the management and operation of missile ranges and launch facilities, and the development and procurement of launch vehicles. Continued support was also given to NASA's MERCURY project and other programs—with each MERCURY flight involving some 18,000 Defense personnel in every phase from launching preparations to final recovery. The joint efforts of the Atomic Energy Commission (AEC) and the Department of Defense included the development of a satellite-borne system for detecting nuclear explosions—part of the VELA program of the Advanced Research Project Agency—and of auxiliary nuclear power sources for satellites. The Department also explored with the new Communications Satellite Corporation—established on February 1, 1963, in accordance with the Communications Satellite Act of August 31, 1962—the possibility of adapting its satellite-borne communications system to military as well as civilian requirements.

Defense space programs aimed at specific military missions include the development of systems for communications, navigation and geodesy, detection of nuclear explosions and missile launchings, satellite tracking, and similar applications. In the field of communications, studies were continued during fiscal year 1963 investigating the use of medium altitude, random-spaced satellites in polar orbits for global communications coverage. A successful space shot under the WEST FORD project in May 1963 proved the technical feasibility of orbiting a belt of copper filaments around the earth and using these filaments as passive reflectors for relaying voice, teletype, and high-speed digital communications. The development of the navigational satellite system proceeded as planned with the launching of prototype satellites, the installation of shipboard equipment, and further evaluation of operational feasibility. The geodetic measurement satellite, ANNA 1B, launched on October 31, 1962, helped to determine the accuracy of long base-line surveys and to position long-range electronic navigation stations (LORAN-C) on certain Pacific islands; follow-on responsibility for the ANNA project was transferred to NASA in December 1962. Numerous other satellites were launched

during the fiscal year to improve our knowledge of space flight techniques and technology that might prove useful in meeting military requirements.

As for manned space flight, the Department of Defense not only participated in the extensive NASA program established for this purpose but also pursued various projects of its own to meet special military requirements or to contribute to the total national effort. Of particular interest to the Department has been NASA's GEMINI project to develop techniques of rendezvous and docking in orbit and to test man's ability to perform effectively under prolonged weightlessness. An agreement between the two agencies announced on January 22, 1963, established GEMINI as a national manned space flight program under the supervision of a joint Program Planning Board, thus assuring that tests will provide information needed not only for NASA's lunar landing efforts but also for maintaining manned satellites in near-earth orbits for lengthy periods—a matter of particular interest to the armed forces. The close relationship between GEMINI and Dyna-Soar (X-20), a Defense project testing the feasibility of a one-man space glider, was made the subject of thorough review to determine the extent to which each project could contribute to meeting military requirements in the future. Additional data on aerodynamic, structural, and physiological problems related to manned flight at hypersonic speeds and space-equivalent altitudes were obtained from numerous successful flights of the X-15 aircraft—a joint NASA-Defense undertaking.

The Defense role in the National Launching Vehicle Program is focused primarily on the development of large solid-propellant boosters. Substantial progress was made during the year on TITAN III, which—after a year of thorough program definition—was approved for development in December 1962. This booster will consist of a modified TITAN II ICBM combined with a pair of 120-inch diameter solid-propellant motors that can develop over 2,000,000 pounds of lift-off thrust and place 5,000 to 25,000 pounds of payload into low earth orbit. The first full-size 120-inch motor was successfully tested in July 1963 and research was continued on the development of 156-inch and 260-inch solid-propellant boosters.

III. Defense Management

An effective defense posture requires not only that the forces maintained and planned are adequate to meet current and future threats but also that established programs are carried out efficiently. The high cost of national security has made it doubly important that national resources are not wasted either through inefficient operations or through the pursuit of projects of only marginal value. To this end, a major management effort was initiated in 1961 and subsequently expanded with special attention being given to providing better support for our combat forces, improving the decision-making process, and eliminating unessential expenditures.

As a result of the programs established for these purposes, significant progress was made during fiscal year 1963 in increasing efficiency, effectiveness, and economy throughout the Department of Defense. The readiness of the armed forces to carry out whatever mission might be assigned to them is greater today than ever before in peacetime, and new management procedures and controls have improved decision making and yielded savings that made possible substantial reductions in the Department's requests for new funds. This management effort was organized on a permanent basis and will produce steadily increasing benefits in the years ahead.

Organization

The changes in the Defense structure since 1961 have been made in accordance with the belief that unified planning, programing, and decision-making are indispensable for the effective management of the Department, but that the actual operation of programs should be managed, to the maximum extent possible, on a decentralized basis. A meaningful evaluation of Defense programs can not be achieved by reviewing them separately; only through an analysis of the total Defense effort can appropriate priorities be assigned and a proper balance of all elements be established. On the other hand, the Defense effort is entirely too big, too complex, and geographically too dispersed to permit the management of its operations from a single, central point.

For the direction and control of combat forces, the chain of command runs from the President and the Secretary of Defense through the Joint Chiefs of Staff directly to the unified and specified commanders who are responsible for operational missions. For the day-

to-day administration of support activities, such as personnel management, research and development, procurement, and logistics, the Secretary of Defense depends primarily on the military departments. Certain common tasks that cut across departmental lines are administered by Defense agencies, three of which report to the Secretary through the Joint Chiefs of Staff—the Defense Atomic Support Agency, the Defense Communications Agency, and the Defense Intelligence Agency—while the fourth, the Defense Supply Agency, reports to him directly.

The organizational structures of all three military departments have been realigned since 1961 to provide better support to the operating forces and more efficient management. The Army reorganization announced on January 16, 1962, was placed fully into effect during fiscal year 1963. Functions formerly performed by the seven Technical Services were transferred to three Army commands, thus reducing organizational complexity and simplifying administrative controls. The Navy's plan for clarifying and strengthening lines of authority was announced on May 31, 1963. Under this plan, the responsibilities of the Chief of Naval Material are being expanded to include direct supervision of the logistics support activities of the Bureaus of Naval Weapons, Ships, Supplies and Accounts, and Yards and Docks. At the same time, the Chief of Naval Operations is assuming command authority over those shore-based installations that directly support the fleet, such as submarine and amphibious bases, air stations, fleet headquarters ashore, and fleet training schools. The Air Force continued to carry out its materiel support activities during fiscal year 1963 under the organizational structure adopted in 1961, when the Air Force Systems Command and the Air Force Logistics Command were established.

Within the over-all organizational structure, the never-ending task of seeking further management improvements has been made a primary objective at all Defense levels. Steps taken included the assignment of single manager responsibilities to the Army for foreign language studies and to the Air Force for air intelligence training. At the same time, the various Defense agencies considerably expanded their capabilities to provide Defense-wide support in their assigned fields. Other functional areas were placed under review to determine the extent to which organizational changes might contribute to more effective operations.

Planning-Programing-Budgeting

The planning-programing-budgeting system established in 1961 continued to be improved during fiscal year 1963 while it served as a progressively more effective management tool. It provides a mech-

anism for developing a realistic program for meeting both our current and long-range military requirements. The forward projections of our force requirements are supplemented by parallel projections of financial resources needed for these requirements, with total program costs divided into annual increments. Both financial and physical data are compiled in terms of major missions as well as organizational entities. Alternative ways of accomplishing the same mission are sought out and costed in order to give decision-makers the perspective as well as the range of choices they require. The availability of this type of information makes it possible to judge the relative cost effectiveness of alternative courses of action and to reach decisions that will assure the maintenance of required forces at the lowest possible cost.

The key element in this management effort is the programing system which bridges the gap between the long-range plans of the Joint Chiefs of Staff and other military planners and the short-range annual budget requests of the Department of Defense. The programing system thus helps to relate missions to forces, forces to resource programs, and resource programs to annual budgets. Program elements, the basic building blocks of the programing structure, are grouped under nine principal headings—five of which involve the specific missions of strategic retaliation, continental air and missile defense, combat short of general nuclear war, airlift and sealift, and civil defense, while the remaining four include preparatory and back-up activities in the fields of research and development, general support, reserve forces, and military assistance. Each of the program elements expresses in both financial and physical terms—i.e. in dollars as well as in numbers of men, weapons, bases, etc.—the resources that will be required annually to carry out approved national security plans.

The first 5-year projection of force structures and supporting program requirements was developed in 1961 in conjunction with the preparation of the fiscal year 1963 budget, submitted to the Congress in January 1962. On the basis of the experience gained, steps were taken to improve and refine the programing system. On July 1, 1962, new procedures became effective for the review and approval of proposed program changes, for updating the 5-year projection periodically, and for progress reporting on selected major program elements. Provisions were made for submitting each significant program change to all the interested agencies for comment so that the final decision can be based on the best available information and on a full consideration of alternative courses of action. To improve cost estimates, the component elements of major programs were revised and more clearly delineated, and particular attention was given to obtaining a more precise allocation of support costs among the various program ele-

ments. Finally, a special cost analysis group was established to increase the accuracy and comparability of cost estimates.

Progress was also made in aligning the programing structure more closely with the traditional appropriations structure—military personnel; operation and maintenance; procurement; research, development, test, and evaluation (RDT&E); military construction; civil defense; and military assistance. The appropriations accounts for RDT&E, for example, were subdivided into some 320 subactivities which are identical in both the appropriations and the program structures. Similarly, program items for materiel and for construction were made compatible with corresponding line items in the appropriations accounts for procurement and for military construction. In addition, the previously existing separate planning-programing cycle for military assistance was abandoned in favor of making military assistance an integral part of the Defense programing system.

The development of the programing system was accompanied by increased emphasis on systems analysis techniques to assist in the decision-making process. Systems analysis helps to evaluate new proposals by sorting out the relevant factors in complex problems and providing quantitative estimates of the military effectiveness and costs for each alternative. The availability of this type of information makes it possible to reach more informed decisions on such vital matters as the selection of new weapon systems and the design of our force structure.

These management tools greatly facilitated the formulation of the budget for fiscal year 1964. Between July and October 1962 several hundred program change proposals were considered and acted upon, thus providing an updated 5-year projection on which to base the 1964 estimates. In October the military departments and the Defense agencies submitted their budget requests for the next fiscal year. A thorough review of these requests was made by the Secretary's staff and representatives of the Bureau of the Budget, and outstanding differences were resolved by the Secretary and Deputy Secretary of Defense in consultation with their principal military and civilian advisers. As a result of the program and budget reviews, the requests of the military Services, totaling \$67.3 billion, were sharply pared down. The fiscal year 1964 budget, as approved by the President and submitted to the Congress in January 1963, called for \$53.7 billion in new obligational authority to cover the military functions of the Department, military construction, military assistance, and civil defense.

The 1964 estimates were about \$2.6 billion higher than the funds provided for fiscal year 1963. While the requirements for the strategic retaliatory forces were about \$1.1 billion less in the 1964 request, the estimates for the general purpose forces and for research and

development were considerably raised—by \$1.3 billion and \$0.8 billion, respectively. Smaller increases were proposed for most of the other programs. The estimates also included an additional \$0.9 billion for military personnel in anticipation of the approval of proposed legislation for a military pay increase. (See table 3.)

The Congress considered \$52.7 billion of the \$53.7 billion submission, postponing action on the additional pay and allowance request for military personnel, and appropriated \$49.9 billion in new obligational authority, or about 5 percent less than requested. More than a quarter of this \$2.8 billion reduction was made in anticipation of savings resulting from management improvements. Another quarter represented substantial reductions in the military assistance and civil defense programs, \$0.5 billion and \$0.2 billion, respectively. The remainder of the reduction was widely distributed among the other appropriations titles, including \$0.4 billion for military construction and substantial sums for certain research and development projects not sufficiently advanced to justify the approval of additional funds at this time. The \$49.9 billion approved by the Congress, together with the \$1.1 billion for increased military pay to be requested in a supplemental appropriation, will give the Department \$51.0 billion in new obligational authority (NOA). The addition of \$1.5 billion through transfers from revolving funds, reimbursements, and other financing adjustments will raise this total to \$52.5 billion in total obligational authority (TOA).

In the continued effort of the Department to improve all aspects of its financial management, the development of the programing system was accompanied by many supplementary actions. A single account for all appropriations related to the construction and operation of military family housing was established, and the new funding procedures together with the centralization of management responsibility made possible a more efficient administration of this important program. At the same time, military personnel accounts were being modernized to establish better controls over funding procedures and to provide, with the help of automatic data-processing equipment, more accurate estimates of future budget requirements. Expanded use was made of revolving stock funds and industrial funds, and continued management improvement made possible the transfer of \$410 million in fiscal year 1963 from the excess capitalization of these funds to other accounts, primarily military personnel. Additional transfer of \$325 million are authorized for fiscal year 1964.

Major attention was also given to improving the auditing operations of the Department. The audit staff in the Office of the Secretary of Defense was reorganized and enlarged to provide increased central direction and coordination of auditing activities in the military de-

partments and Defense agencies. Steps were taken to promote greater uniformity in audit programs, to concentrate audit resources on high priority Department-wide tasks, and to assure that audit findings in one agency are cross-checked for possible application to other agencies. Maximum use was being made of the auditing reports by the General Accounting Office as well as those by internal audit agencies to increase operational efficiency.

Research and Development

Continued rapid progress in science and technology is as essential for our national security as it is for the growth of our Nation. Advanced weapons technology has given us a margin of superiority which constitutes our best means for deterring war in the present world situation. The sole objective of military research and development is to maintain this superiority. In support of this goal, Defense investment was substantially increased in recent years and, in addition, numerous steps were taken to obtain maximum returns on this investment through improved management.

The magnitude of the Defense effort is illustrated by the fact that obligations for research, development, test, and evaluation in fiscal year 1963 amounted to \$7.4 billion, or about 14 percent of all Defense obligations and 60 percent of the Federal Government's commitment to research and development. The 1963 total represented a \$0.5 billion increase over the RDT&E obligations for fiscal year 1962 and another \$0.6 billion increase is estimated for fiscal year 1964. (See table 10.) While financial statistics provide only a partial measurement of the full effort, they do give some indication of the importance that the Department has assigned to research and development in its over-all program.

To improve the management of RDT&E programs, special control techniques were used in the review and evaluation of new proposals as well as of current activities. All projects were classified according to six major categories—(1) research, (2) exploratory development, (3) advanced development, (4) engineering development, (5) operational system development, and (6) management and support.

The first five of these categories correspond generally to the successive phases leading from the conception of an idea to the production of military hardware. In the research and the exploratory development categories, dealing respectively with efforts to expand the frontiers of knowledge and with studies evaluating the feasibility of proposed solutions to military problems, managerial controls provide primarily the level of effort to be expended; the establishment of rigid goals and time schedules would be neither appropriate nor feasible in these early stages. In the advanced development category, which involves the development of hardware for technical and operational testing,

emphasis is placed on assuring that the work produces the data required for judging a project's potential military usefulness and for estimating its eventual cost. All but a small fraction of the hundreds of major projects and thousands of specific tasks in the Defense research and development effort are in these three categories, which produce the "building blocks" needed if an orderly and efficient production program is to be pursued.

Before a major program moves into the engineering development category and, after approval for production and Service use, into the weapon systems development category, it is submitted to a "project definition" study which establishes for the Department and for the contractor exactly what is wanted, how it is to be designed and built, what it should cost, and how the program is to be managed. Thus, assurance is provided before large resources are committed that the performance, cost, and time factors are chosen to yield greatest military usefulness and that the preliminary research has provided all the essential elements for full-scale development. Moreover, this approach permits the establishment of firm goals and time schedules and reduces the chances for substantial cost overruns which have traditionally occurred in these stages of development.

The new program structure and managerial controls made it possible to achieve during fiscal year 1963 a much improved allocation of men, money, and facilities to high priority tasks. Less promising projects were discontinued or reoriented in the light of more adequate definition and evaluation of military requirements and of the available technology. The initiation of costly crash programs involving concurrent development and production, which often proved disappointing in the past, was avoided. With firm specifications established and the technical "building blocks" at hand, the use of fixed-price and incentive-fee contracts could be expanded in place of the frequently unsatisfactory and expensive cost-plus-fixed-fee (CPFF) pricing provisions.

Additional management changes were directed in response to the recommendations contained in the Report to the President on Government Contracting for Research and Development, known as the Bell Report, approved by the President on April 30, 1962. To improve procurement practices, better methods were developed for evaluating the performance of contractors, and new standards of conduct were established to prevent unfair competition and conflicts of interest, particularly for contractors who provide systems engineering and other technical services. Steps were also taken to improve the management of the Department's own "in-house" research facilities and personnel. The position of the technical directors of laboratories operated by the Department of Defense was strengthened by giving them greater control over the work and by reducing the intervening

levels of review and supervision over such laboratories. Salary increases and the better use of the professional and scientific positions authorized by the Congress contributed to improved recruitment and retention of skilled scientific manpower, and increased emphasis was placed on training and educational programs for professional personnel.

The handling of scientific and technical information was made the subject of an intensive study during the year. On December 31, 1962, a new basic policy was issued promoting the more timely, effective, and coordinated exchange of technical data. The position of Director of Technical Information was established early in 1963 to provide a focal point for improved management in this field. In March, the Armed Services Technical Information Agency (ASTIA) was reconstituted as the Defense Documentation Center for Scientific and Technical Information (DDC) and was given more comprehensive responsibilities for the acquisition, storage, and dissemination of technical reports. After the close of the fiscal year, the administrative control of DDC was transferred from the Department of the Air Force to the Defense Supply Agency, and steps were taken to accelerate storage and retrieval operations with the help of a high-speed, large-capacity computer.

Manpower

The personnel policy of the Department of Defense has as its major objective to provide working conditions that will attract and retain the high caliber of personnel, both military and civilian, required for the maintenance of an effective military establishment. Substantial progress toward this objective was made in fiscal year 1963. In July 1962 the Congress approved an 18 percent increase in quarters allowances for military personnel, and in October a two-step pay raise of about 9.6 percent for civil service personnel was enacted. In January 1963 the Administration introduced a new pay bill for military personnel that was passed by the Congress in October and provided an average increase in base pay of 14.2 percent.

These three bills will add about \$1.9 billion to the Defense budget during their first full year of operation—\$285 million for quarters allowances, \$363 million for civilian pay, and \$1,212 million for military pay. While the pay raises reflected in part increases in the cost of living and higher salaries in the civilian economy since the last review of pay scales, they did not simply provide an across-the-board increase but were scientifically designed to reduce shortages in critical categories and improve the quality of Defense personnel.

The Uniformed Services Pay Act of 1963, the first change in the rates of base pay since 1958, provided special inducements for continued active service to junior officers, to enlisted personnel just completing first tour of duty, and to senior noncommissioned officers. No

pay raise was given to personnel with less than 2 years' service. In the officer category, first lieutenants and lieutenants (junior grade) who had completed 2 years of service were given a 28.9 percent raise and Army and Air Force captains and Navy lieutenants with the same length of service, one of 27.2 percent, while general and flag officers received an increase of only a little more than 5.0 percent. In the lower enlisted ranks, the major increases went to E-3's with 3 years and to E-4's with 4 years of service—25.0 percent and 20.6 percent, respectively. As for the senior noncommissioned officers, those with 26 years of service or more received raises between 27.3 and 31.6 percent. It is hoped that these changes in the base pay system will contribute to making a military career more attractive to younger officers and first-term enlistees and help to retain experienced senior noncommissioned officers.

In addition, the new law authorized certain changes in the "special" pay provisions for military personnel to correct existing inequities and anomalies. A monthly payment of \$55 for personnel "subject to hostile fire" was approved and extended to certain personnel in Vietnam. A new system of family separation allowances was established for personnel whose assignments preclude their dependents from residing with them. Special pay for enlisted personnel on sea duty was continued without change, but special foreign duty pay for oversea shore-based assignments was made permissive rather than mandatory so that it can be limited to assignments of exceptional hardship. Under the new standards, about 225,000 individuals will qualify for this special pay as compared to 600,000 formerly eligible. Hazardous duty pay standards were revised to permit submarine crews in training to receive submariners pay, to allow double payments to personnel performing two or more hazardous duty assignments concurrently, and to authorize such pay for duty in high-pressure as well as low-pressure chambers. To assist in reducing the critical shortage in career physicians and dentists, the incentive payment for those with more than 6 years of active service was raised from \$200 to \$250 per month and for those with more than 10 years from \$250 to \$350. The separate pay adjustments account for about \$100 million of the \$1.2 billion increase in military personnel costs.

The new legislation also made a major change in the retired pay system by tying all future adjustments in these rates to the cost of living rather than to active duty pay scales. Henceforth, retired pay rates will be increased whenever the annual review indicates that the Consumer Price Index has risen by 3 percentage points since the previous adjustment. All personnel already retired will receive an immediate increase of at least 5 percent. The inequity of the Military Pay Act of 1958, which gave retired personnel a 6 percent increase instead of permitting a recomputation of retired pay on the basis of

the new pay scales, was also removed. Under the new law, personnel who retired between 1949 and 1958 are given the option of accepting a 5 percent increase or recomputing their retired pay on the basis of the 1958 active duty rates and can claim whichever amount is greater. The first year's costs of these adjustments are expected to total about \$75 million.

Another change in the military pay system resulted from the re-examination during fiscal year 1963 of the proficiency pay program for enlisted personnel that was established in 1958. The primary purpose of this additional pay is to retain in service personnel in highly technical, "hard-to-keep" specialties. On June 30, 1963, some 274,000 enlisted men were qualified for proficiency pay—223,000 in the P-1 rating that carried an additional \$30 per month and 51,000 P-2's with an extra \$60. Since the 1963 review indicated that the existing program failed to stimulate as many reenlistments as anticipated, new procedures were developed to become effective at the same time as the Uniformed Services Pay Act of 1963. The revised program establishes higher qualifying standards and authorizes "specialty" payments of \$50, \$75, and \$100 per month for P-1's, P-2's, and P-3's, respectively, and "superior performance" payments of \$30 per month. The revised program is expected to reduce by 60,000 the number eligible for additional pay by the end of fiscal year 1964.

The continuing problem of inadequate housing for some military personnel was also given major attention during the fiscal year. With a steady rise over the past decade in the proportion of married personnel and in the number of dependent children, the availability of suitable quarters has become an increasingly significant factor for many in deciding whether or not to remain in active service. On January 1, 1963, the first raise since 1952 in quarters allowances—an 18 percent increase—became effective, and further relief was provided later in the year by the new family separation allowances authorized by the Uniformed Services Pay Act of 1963. In addition, the recently established offices for family housing developed a long-term plan for constructing 62,100 new sets of public quarters—12,100 in 1964 and 12,500 per year thereafter through fiscal year 1968. The Department's request to the Congress included this plan as well as smaller programs for building trailer park facilities, for leasing houses in areas where military occupancy is apt to be transitory, and for guaranteeing rentals as a stimulus to private builders overseas. As a further step, the Department asked for authority to retain about 20,000 still usable units of the 42,000 sets of Government-owned inadequate quarters which, under previous legislation, were to be converted to other uses or disposed of by July 1, 1965. While this authority was granted, the Congress reduced the 1964 construction program for family housing by 13 percent. Still, the requirement for

additional public housing for military personnel appears to be increasingly recognized.

The importance of providing additional career inducements for military personnel is illustrated by the reenlistment statistics for fiscal year 1963. The proportion of first-term regulars who reenlisted during the year declined from 27.4 to 24.9 percent or by 2.5 percent, and for electronics specialists in this group the drop was 3.3 percent. Moreover, the reenlistment rate for all regulars was 4.4 percent less and that for inductees 8.9 percent. (See table 15.) Among officer personnel, major difficulties were encountered by all the military Services in retaining junior officers, particularly those commissioned through the Reserve Officers Training Corps and having scientific and technological training. The new pay scales and related reforms should provide some assistance in remedying this situation.

The problem confronting the Department in recruiting and retaining military personnel is further highlighted by the continued requirement in the present circumstances for the induction provisions of the Universal Military Training and Service Act. Although inductees constitute only 7.3 percent of the active duty personnel, the draft law has remained an important stimulant to voluntary service. While the number of inductions in fiscal year 1963 was relatively low, totaling about 74,000, this number is expected to double in the next fiscal year. Similarly, the Department did not have to use its authority in fiscal year 1963 to call physicians, doctors, and allied specialists to active duty, but it announced in April 1963 that about 1,250 physicians would be asked to report for duty in fiscal year 1964. In view of these persistent requirements, the Department requested and the Congress approved a 4-year extension of the draft law and related legislation scheduled to expire on July 1, 1963. The large size of the current manpower pool made it possible after the close of the fiscal year for the President to establish a special deferment category for married men in the 19-to-26-year group. Married men will be inducted in the future only after the supply of single men in this group has been exhausted.

The civilian pay raise, approved on October 11, 1962, has greatly assisted the Department's effort to improve the quality of its civilian employees. While this legislation applied to all Federal Government agencies, it was of particular importance to the Department of Defense which employs about 48 percent of all salaried civil service workers. The pay scales for these employees were raised by an average of 9.6 percent in two steps—the first increase averaging 5.5 percent effective in October 1962 and the second of 4.1 percent in January 1964. This pay raise was the third adjustment for civilian personnel since 1958. Reduction of the disparity between Government salaries and those in private industry remained the primary objective and, accordingly,

larger percentage increases were provided for the higher grades where the disparity was the greatest. Additional higher level positions were also authorized. The conditions for periodic "in-grade" salary increases were changed to emphasize the quality of the individual's work, thus providing additional incentive for high performance. Moreover, the new law tied the retired pay of civilians to the cost of living index—a principle that was later extended to military personnel.

The improvement in civilian working conditions has been accompanied by substantial reductions in the total work force. Strict personnel controls were established throughout the Department and helped to make possible a reduction of 27,000 in civilian employment during fiscal year 1963, bringing the total down to 1,213,000 on June 30, 1963. (See table 18.) While lower military strength figures contributed to this decrease, the savings in personnel also reflected the continued effort to improve the organizational structure of the Department and to increase operational efficiency. During the 1964 budget review 58,000 civilian positions proposed by the military departments were eliminated, and the budget as approved provided for a further reduction of 32,000 civilians by the end of fiscal year 1964.

The importance of unqualified adherence by all Defense personnel to the high ethical standards expected of public servants was reinforced by a new directive on standards of conduct issued on May 17, 1963. This regulation codified previous instructions on this subject by the President and the Secretary of Defense and also reflected the recent action by the Congress revising the Federal statutes on possible conflicts between private interests and public duties. The new standards incorporated broader and yet more precise definitions of prohibited and permissible activities by full- and part-time employees, officers and enlisted men on active duty, reserve officers, and retired or former military and civilian personnel. The directive also warned Defense employees to avoid the appearance of a conflict of interest, even though a technical conflict might not exist.

Significant progress was also made in the continued drive to assure equality of treatment and opportunity for all members of the Defense establishment. Positive programs were established to encourage the full utilization of the talents and capabilities of individuals regardless of race, creed, color, or national origin, replacing more limited procedures that were designed primarily for handling after-the-fact complaints about discriminatory practices. The release in June 1963 of the report by the President's Committee on Equal Opportunity in the Armed Forces highlighted the year's effort in this field. The committee, known after its chairman as the Gesell Committee, recognized the considerable advances that had been made in the armed forces over the

past 15 years and concluded that nondiscriminatory policies were generally followed by the military Services and prevailed on military bases, although some further improvements were suggested. Of far greater concern to the committee, however, was the reduction in military effectiveness that often resulted from discrimination against Negro servicemen and their families away from military installations. Many of the committee's recommendations for mitigating these adverse conditions were endorsed by the Department of Defense, and the military departments were directed to instruct commanders on their responsibilities for fostering equal opportunity for their personnel off the post as well as on it. The position of Deputy Assistant Secretary (Civil Rights) was established to monitor progress in the armed forces, and a new Director for the Equal Employment Opportunity Program was charged with overseeing the application of antidiscriminatory policies pertaining to civilian personnel and to defense contractors.

At the direction of the President, the Department of Defense also deployed units of the active forces in Mississippi and Alabama during fiscal year 1963 to prevent disturbances in connection with carrying out civil rights decisions of the Federal courts. Developments in Oxford, Miss., in late September 1962 forced the deployment of Army units which were quickly reinforced by about 11,000 men from the federalized Mississippi Army and Air National Guard. The rapid restoration of order permitted the release of the Guard from active service and the return of most of the regular forces to their home station by the third week of October. In May 1963, following riots in Birmingham, Ala., infantry, military police, and supporting elements were moved at the direction of the President into military installations in that area. As a precautionary measure against disorders developing from the admission of Negro students to the University of Alabama, about 17,000 Alabama Army and Air National Guardsmen were called into active service on June 11, 1963. With the registration of the Negroes, most of the Guard units were released 5 days later and the remainder shortly thereafter.

Logistics

The primary mission of the logistics management activities of the Department of Defense is to provide the most effective support possible for our armed forces. How well this mission is met must be the principal determinant in judging all logistics programs. At the same time, however, the size, scope, and diversity of military logistics inevitably create major management problems which, unless brought under control, may not only result in the waste of public funds but also actually hamper the operations of military forces in the field. Effectiveness and efficiency are parallel requirements in military lo-

gistics, and the Department's policies and programs have been focused on achieving both goals. As a result, the considerable progress made during fiscal year 1963 in providing the armed forces with the weapons and equipment needed was accompanied by substantial savings in practically all supply activities.

In July 1962 the Department of Defense established a 5-year cost reduction program with a goal of \$3.0 billion in annual savings by 1967, and an interim objective of \$750 million to be achieved by actions taken during fiscal year 1963. As work on this program progressed, it became clear that the potential for savings was far greater than originally thought, and the goals were substantially increased by successive reviews. By the end of the fiscal year, the total annual savings to be realized by 1967 had been raised to more than \$4.0 billion, to which the actions taken during fiscal year 1963 were estimated to have contributed nearly \$2.4 billion, representing 59 percent of the goal. The hard savings already obtained from this program in fiscal year 1963, including certain one-time savings not expected to recur in future years, amounted to \$1.4 billion and were reflected in the budget proposals to the Congress. (See table 27.)

The cost reduction program has become a major activity throughout the Department. Specific, time-phased goals, admittedly ambitious, have been assigned to component agencies, and management personnel have been directed to give continuing, high priority attention to all phases of the program. To measure progress, a periodic reporting and auditing system was established which highlights the areas requiring additional action and validates the projects included and the achievements claimed. Some 25 areas of logistics management were grouped for this purpose into three broad categories: (1) Buying only what we need, (2) buying at the lowest sound price, and (3) reducing operating costs.

Buying Only What We Need

Annual savings of more than \$1.7 billion, or 43 percent of the overall reduction goal of \$4.0 billion by 1967, are to be realized in this category. The actions taken through fiscal year 1963 will account for \$1.1 billion in annual savings.

Refinements in the determination of requirements have made possible substantial reductions in procurement programs. Outdated planning factors were discarded and more realistic inventory levels established by taking full account of all of the assets on hand and the continuing productive capacity of industry in an emergency. An analysis of available transportation resources permitted reductions in pipeline requirements for certain types of materiel. Excessive or duplicative "safety factors," introduced at successive levels in supply administration, were eliminated. Tighter management controls helped

to reduce the requirements for spare parts, particularly those for aircraft and missiles.

Additional contributions to procurement reductions were obtained through a more effective redistribution of excess inventory stocks among the various component agencies of the Department. The Defense Supply Agency (DSA), acting as a central clearing house, had almost completed by the end of the fiscal year the establishment of a new screening system that will automatically match all new requirements against items in long supply, and steps were taken to increase the reutilization of excess items and materials in the hands of Defense contractors after the termination of their contracts. New controls were also developed for the greater use of idle industrial plant equipment owned by the armed forces.

A major effort was also launched to eliminate so-called "gold plating" in procurement specifications. The design of items and components for maximum life, performance, and reliability—often beyond the point needed for effective military use—has sometimes increased costs unnecessarily. For example, a 1 percent improvement in performance might raise the price of an item 20 to 30 percent. To combat unnecessary expenditures, "value engineering" programs have been established to seek out and eliminate unwarranted qualitative refinements. An incentive system whereby the contractor shares in the savings from such cost reductions was initiated in 1963.

The more rapid elimination of unnecessary listings among the nearly 4,000,000 defense items in the Federal Catalog became the source of additional savings. Special task forces speeded up the screening out of duplicate and unnecessary items, many of which were carried separately merely because of unimportant differences in specifications, color, or packaging. In the case of handtools, for example, over one-third of the 25,000 items listed have been marked for elimination. Management costs for each item stocked separately are estimated to average at least \$100 annually.

Buying at the Lowest Sound Price

Annual savings of nearly \$1.1 billion are planned to be achieved by 1967 through the more economic and efficient purchase of weapons, equipment, supplies, and services. About 63 percent of this goal, amounting to \$673 million, was realized by actions taken through fiscal year 1963. The programs established in this area call above all for an increased effort to shift from noncompetitive to competitive contracts wherever possible and from cost-plus-fixed-fee to fixed-price or incentive-type contracts. The importance and magnitude of the task is illustrated by the fact that even in fiscal year 1963, of the \$29.4 billion in military prime contracts awarded, \$18.3 billion was still being placed by procurement methods other than price competition and CPFF contracts totaled \$5.4 billion. (See tables 31 and 32.)

The program for increased competitive procurement aims to raise the percentage of such contracts from the 32.9 percent awarded in 1961 to 39.9 percent by 1965. By the end of fiscal year 1963, this percentage had been raised to 37.1 percent and the resultant savings were estimated at \$237 million—based on an estimated price reduction of about 25 cents for each dollar shifted to competitive procedures. Among the actions taken to make these results possible have been an intensive effort to “break-out” component parts of complex systems that can be made subject to competitive bidding, and advance planning to assure that prime contractors make available specifications and detailed technical drawings in time for other manufacturers to compete for contracts when the item moves from the development to the production stage. In the latter case, the taxpayer benefits even if the development firm wins the production contract, for the prospect of competition spurs the search for more efficient and cheaper manufacturing methods. In addition, an intensified training program for procurement personnel has been established that should help the military departments and other procurement agencies to achieve the specific quotas that have been set for each one of them.

The rapid growth of CPFF contracts from 13 percent in 1952 to 38 percent in fiscal year 1961 indicated the need for a critical review of this type of contracting. As a result, the percentage was lowered to 20.7 percent in fiscal year 1963—well on the way toward the 12.3 percent target that has been set for 1965. The annual savings from the actions taken through fiscal year 1963 were estimated at \$436 million, computed on the basis of a 10-cent saving for each dollar shifted from CPFF contracts. The major drawback in the CPFF procedures is that they fail to provide incentives not only for economy and efficiency but also for developing relatively accurate cost estimates and tight management controls. While the urgency with which many of the major weapon systems were developed during the past decade helps to explain the increased use of CPFF contracts, the serious disadvantages of such contracts argue for their use only in extraordinary circumstances.

The reduction in CPFF contracts was accompanied by a rise in firm fixed-price contracts from 38 to 41.5 percent and in incentive contracts from 16.1 to 27.5 percent. This shift in contracting has been helped along by the more extensive use of “program definition” studies for research and development projects and of full-time project management offices supervising the execution of major weapon contracts. As for incentive contracts, they provide a larger return for any contractor who is able to reduce his costs or exceed agreed-upon contract goals, and they penalize those who fail to meet the established cost, delivery, and performance targets. The Department has encouraged the use of incentive contracts by keeping industry thoroughly informed of its procurement objectives, and a special program has been launched

within the Department for evaluating the effectiveness of contractors in meeting their commitments.

As part of its over-all effort to stimulate competition, the Department continued its program to assure that small business receives a fair share of Defense contracts. Despite increased publicity given to Defense contracts, however, the value of prime contract awards to small business declined from \$4.6 billion in fiscal year 1962 to \$4.3 billion in 1963. Not only did small firms compete for a smaller percentage of the publicized requirements, but they were also less successful in their bidding. Moreover, the drop during fiscal year 1963 in "soft goods" procurement—the type most suitable to small firms—contributed to the decline. In addition, the very success of some small firms in the past was accompanied by an expansion in size that moved them out of the small business category. The Department's effort to encourage the subcontracting to small business by large prime contractors was more successful during fiscal year 1963, as the value of payments under such contracts increased from \$4.0 billion to \$4.3 billion. Thus, total awards and payments to small business amounted to \$8.6 billion for both fiscal years 1962 and 1963.

Areas of substantial unemployment received during fiscal year 1963 \$3.8 billion in prime contracts, of which \$138 million were awarded through the set-aside and tie-bid preference programs.

Reducing Operating Costs

Annual savings of about \$1.2 billion by 1967, or about 31 percent of the \$4.0 billion total goal, are planned to be realized through curtailing the day-to-day operating costs of the Defense establishment. Over half of the \$1.2 billion target has already been achieved by the actions taken through fiscal year 1963, involving the closure of unnecessary installations, the consolidation and standardization of activities, and numerous additional actions designed to promote greater efficiency in logistics administration.

The systematic identification of military installations at which activities can be reduced or terminated was initiated in 1961 and since then has made significant contributions to the cost reduction program. By the close of fiscal year 1963, over 600 decisions had been reached in this area, affecting 400 localities at home and abroad. These announcements will result in the eventual disposal of 273,000 acres, costing with improvements about \$2.2 billion, and the reassignment or release of some 53,000 military and civilian personnel. It was estimated that these actions, when fully accomplished, will produce annual savings of \$336 million, of which \$123 million was actually realized during fiscal year 1963.

The disposal of surplus real property is not only relieving the Department of unnecessary operating expense but is also restoring land to local tax rolls and, in cases like the sale of industrial plants, creat-

ing new job opportunities. As for potentially adverse effects locally, all possible efforts are being made to minimize the impact of these closings on the community. A special program has been established to assist employees in finding other jobs and local officials in turning excess military property to productive civilian uses. With the Department's real property holdings on June 30, 1963, amounting to 30.2 million acres valued with improvements at an acquisition cost of \$36.6 billion, the continued critical review of these holdings can be expected to yield considerable additional savings in the years ahead. (See table 39.)

Indicative of the savings possible through consolidation have been the achievements of DSA during fiscal year 1963. Founded in the fall of 1961, DSA was managing 208,000 different supply items at the beginning of the fiscal year and 1,029,000 at the close, the latter representing 26 percent of the items in the military supply system. During the Cuban crisis, the new agency proved to be fully responsive to the needs of the military Services and demonstrated its capability to provide effective logistics support under emergency conditions. It distributed supplies valued at \$1.6 billion during the year and was able to draw down its inventories by \$261.6 million—a one-time saving. In carrying out its Department-wide responsibilities, DSA operated with 3,475 fewer civilian employees than the military departments had budgeted for the same functions, contributing thereby an annual saving of \$31 million. Further reductions in operating costs are planned, including the consolidation over the next 2 years of primary storage locations from 77 to 11. A fuller account of DSA achievements can be found in Annex B to this report.

Another phase of the cost reduction program is focused on simplifying and standardizing procedures and operating practices throughout the Department. This effort includes such actions as the consolidation of 16 different requisitioning systems into one system (MILSTRIP), which became effective on July 1, 1962; the consolidation of 81 transportation forms into a single one (MILSTAMP), effective on October 1, 1963; and further mechanization of mass paperwork, for which the selective purchase of automatic data-processing equipment, in place of renting, promises additional savings. The increased speed in deliveries, made possible by the elimination of unnecessary paperwork, also permits the establishment of shorter lead-times and, thus, the maintenance of lower inventory levels. Further improvements in operating procedures are being developed as a result of "Project 60," an extensive review of the Department's contract activities, including its 400 field offices with over 43,000 employees. The feasibility of consolidating field offices on a regional basis will be tested during the coming year and more uniform contract policies and procedures are expected to contribute greatly to better administration.

In the communications area, costs are being reduced by the Defense Communications Agency (DCA) through lower tariff rates made possible by the consolidated procurement of leased lines and through the more effective use of existing communications services that have permitted the cancellation of previously approved and funded expansion projects.

Greater efficiency in transportation activities has been a primary responsibility of long standing of three Defense-wide enterprises—the Defense Traffic Management Service (DTMS), the Military Sea Transportation Service (MSTS), and the Military Air Transport Service (MATS). During the past year, lower operating costs were achieved through the increased use of “economy” class air travel, better rates for the movement of household goods to and from overseas, the transport of Far East cargo by fast ship rather than by air, and various similar actions.

A special major effort was launched during fiscal year 1963 to improve equipment maintenance operations throughout the Department. Over-all responsibility for improvement was assigned to a new Deputy Assistant Secretary (Equipment Maintenance and Readiness), assisted by a Department-wide advisory council. Work has been started to determine realistic readiness standards for each principal category of equipment, to develop improved cost accounting methods and better planning and scheduling procedures, to encourage the use of departmental personnel in place of more expensive contract technicians, and to produce more comprehensive analyses of failure data. The magnitude of potential savings in this area is indicated by the target of \$340 million in annual savings by 1967.

In the field of real property and family housing management, cost reductions are being realized through lower rates for utilities, closer control of alterations and minor construction projects, and the consolidation of administrative offices and functions. A new uniform cost accounting system, placed into effect on July 1, 1963, will permit a more detailed analysis of cost variations and is expected to make a major contribution to the more efficient management of all Defense real property.

Joint Logistics Planning

The full success of the cost reduction program depends in the long run on the degree of cooperation that the program receives not merely from the various management levels of the Department of Defense but also from industrial leaders. To promote such cooperation, the Department has made many special efforts to disseminate information on the established objectives, to obtain advice and counsel from those most directly concerned, and to gather any suggestions that might contribute to greater efficiency.

The Defense Industrial Advisory Council, established in May 1962, served during the year as a most useful two-way communication channel between the Department and industry. The 22 members of the council and their supporting subcommittees greatly assisted in finding workable solutions to mutual problems, considering such matters as incentive contracting practices, fees and profits under noncompetitive negotiated contracts, performance evaluation, the respective roles of industry and Government in weapon systems management, and the avoidance of conflicts of interest by contractors.

In its search for better solutions to logistical problems, the Department continued to utilize the Logistics Management Institute, a non-profit research organization chartered by a board of trustees with wide experience in business management and military logistics. The Institute's valuable recommendations during the past year included proposals for improved procedures for forecasting requirements, particularly for spare parts for new weapon systems, that are expected to produce annual savings of about \$50 million. Other areas under study include the simplification of designs and specifications, increased competition in procurement, performance evaluation, and improved management.

Within the Department, the Logistics Studies Information Exchange, established in July 1962, is assuring wide dissemination among all the military Services of the results of current research in logistics by compiling and distributing significant data on studies completed and on work in progress. This service is also helping to prevent the initiation of overlapping or duplicating research projects. Joint training courses for logistics personnel in their various specialties are promoting improved coordination between the military departments and more uniform implementation of logistics procedures.

Collective Security

The commitment of the United States to a policy of collective defense not only expresses our traditional support of the principles of freedom and self-determination for all mankind but also reflects our recognition of the close interdependence of our security and that of the rest of the free world. To ignore this interdependence would gravely jeopardize our national safety. During fiscal year 1963, the principle of collective security, embodied in mutual defense alliances between the United States and some 40 countries, remained a major element of U.S. policy. The military contribution to this policy includes cooperation between U.S. and allied military staffs, the deployment of armed forces overseas, and the extension of military assistance to friendly countries.

Throughout the year, U.S. and allied military staffs collaborated closely, within the political framework approved by their respective

governments, in carrying out the objectives of the various alliances. These joint efforts covered the security of the members of the North Atlantic Treaty Organization (NATO), the Southeast Asia Treaty Organization (SEATO), the Organization of American States (OAS), and the Australia-New Zealand-United States (ANZUS) Pact as well as the Republic of China, Japan, Korea, and the Philippines, to each of which the United States is linked by a bilateral defense agreement. Although the United States is not a member of the Central Treaty Organization (CENTO), American military personnel assisted in the joint planning for the defense of Turkey, Iran, and Pakistan. While the type of collaboration varied in each case with the problems faced by the allies, the total U.S. participation included the entire spectrum of military activities from the development of requirements and strategic plans for countering aggression to the testing of allied teamwork and combat readiness through joint field maneuvers.

The revolution in military technology and the changing world situation that affected our own military policy also influenced the development of our alliances. In NATO—and to some degree in the other alliances—the joint discussions dealt with such problems as finding better ways for countering the wide range of possible Communist aggression in the future, determining an equitable contribution by each ally to the common defense, and developing effective procedures for handling emergency decisions. While the United States presented its views on these problems—including a proposal for the development of a sea-based, multilateral NATO missile force—it continued to add military strength to the alliance by increasing the nuclear and nonnuclear capabilities of its forces in Europe, by assigning three POLARIS submarines to the Supreme Allied Command, Europe (SACEUR), and by broadening allied participation in nuclear planning. In addition, the United States and the United Kingdom reached an agreement on December 21, 1962, at Nassau under which the United States will assist in the development of a British POLARIS force for eventual employment as a NATO component. Although other NATO allies also increased their defense expenditures, particularly the Federal Republic of Germany, some gaps still remained between defense requirements and available resources. The continuing discussions in NATO should clarify how best to meet these deficiencies.

A vital contribution to the effectiveness of these alliances is the continuing ability of our armed forces to assist our allies rapidly in an emergency. The overwhelming strength of our retaliatory forces has been the free world's major deterrent to nuclear war. With respect to non-nuclear conflict, a substantial part of our general purpose forces has been deployed in critical areas overseas and substantial in-

creases in the strategic mobility of the remainder has made it possible to dispatch substantial reinforcements to oversea trouble spots within a few hours' notice. On June 30, 1963, over 40 percent of our armed forces—a total of 1,084,000 men—was assigned to stations outside the continental United States or to naval activities, afloat and mobile, and naval bases overseas. To this total, the Army contributed 392,000, or 40 percent of its strength, and the Air Force 219,000, or 25 percent of its strength. The Navy and Marine Corps listed 389,000 assigned to seagoing fleet activities and 85,000 to shore bases overseas, for a total of 474,000 or 55 percent of Navy and Marine Corps strength. Further insurance that the United States can react swiftly to meet allied security requirements has been provided by the prepositioning of heavy weapons and equipment abroad.

The collective security of the free world derives considerable additional strength from the military assistance program, through which the United States provides weapons, equipment, and training to friendly countries to increase their ability to meet internal and external threats more effectively. This ability of our friends is of direct benefit to us. Without it, the U.S. armed forces would have to carry a far heavier load, at highly burdensome costs in both funds and manpower.

The geographical distribution of military assistance clearly demonstrates the vital importance of this program to free world security. About 72 percent of the money appropriated for fiscal year 1963 was allocated to the Near East and Far East regions, with almost all of it going to the 11 countries facing the Communist bloc from the eastern Mediterranean to the Sea of Japan—Greece, Turkey, Iran, Pakistan, India, Thailand, Laos, Vietnam, the Philippines, the Republic of China, and Korea. To the indigenous forces of these countries, totaling nearly 3,500,000 men, U.S. assistance represents an essential increment of military strength which, if not available, would seriously decrease their defensive capabilities and thereby encourage local aggression. The Communist Chinese incursions into Indian territory in October 1962 illustrate the importance of military preparedness; they also created a new military aid requirement for the free world that is being met jointly by the United States and the United Kingdom and other Commonwealth countries.

U.S. military assistance to Europe has been steadily decreasing over recent years, totaling only 15 percent of the 1963 program. It now consists primarily of the U.S. contribution to the NATO infrastructure and headquarters—expenditures that could as properly be assigned to the regular defense budget—of small amounts of grant aid in connection with our military oversea base program, and of conclud-

ing payments for earlier project commitments. Since no new commitments are being made, Europe's share is expected to decline still further in the years ahead.

As for the Latin American and African regions, their proportion of the 1963 military assistance program was 5 and 2 percent, respectively. Emphasis in the Latin American program, which forms an integral part of the entire Alliance for Progress effort, was being increasingly shifted to the strengthening of internal security without which little economic progress can be achieved or sustained. Internal security considerations also constituted the main objective of the African programs.

In this connection, increased attention is being given to encouraging indigenous military forces to undertake so-called "civic action" projects helpful to the local population. Such projects were underway or being planned in more than 30 countries during the year and included the construction of roads, schools, and medical facilities, the clearing of land for settlement, and the development of water resources for human consumption and for irrigation. These contributions to local communities by military personnel helped to increase the confidence of the people in their government and armed forces and provided useful training, particularly for specialized engineer, signal, and medical units.

The special training offered to foreign military personnel constitutes another productive element of the assistance program. During fiscal year 1963, nearly 17,500 attended military schools in this country and another 6,500 completed courses overseas. Students taking these courses represented practically all the skills required for a modern military establishment—officers of the combat arms, technicians, management personnel, air cadets engaged in pilot training, senior officers visiting the United States for orientation courses, and whole crews for missile units as well as for ships being transferred to foreign navies. This type of instruction not only helps to familiarize students with U.S. weapons and equipment and the proper use of such materiel in the field, but it also broadens the visitors' understanding of our customs and institutions and of the principles that we practice and defend. The effective training of selected officers and key specialists probably yields the greatest return—dollar for dollar—in the entire military assistance program.

Despite the many solid advantages derived from these programs, military assistance proposals have been received with less and less favor by many Americans in recent years. This attitude is reflected in the steadily declining appropriations made available by the Congress, totaling \$1.8 billion for fiscal year 1961, \$1.6 billion for 1962,

\$1.3 billion for 1963, and \$1.0 billion for 1964. The last amount represents a reduction of almost 30 percent in the request of the Executive Branch. As a result, military assistance requirements and the resources available for them have been growing further and further apart. To meet an emergency requirement in one country the program now requires drastic adjustments in other programs, causing delays, confusion, and additional costs. In view of the vital contributions that the military assistance program has made and is making to our security, it deserves the fullest possible understanding and support of both the Congress and the American people.

In carrying out its overseas activities, the Department of Defense continued during fiscal year 1963 to pay particular attention to reducing the adverse impact of defense expenditures on the U.S. balance of payments. The special Defense program established for this purpose aims not only to limit U.S. expenditures abroad for military purposes but also to stimulate the purchase of U.S.-produced weapons, equipment, and services by our allies. As a result of actions taken, the net adverse balance of U.S. international defense expenditures and receipts was reduced from \$2.7 billion in fiscal year 1961 to \$2.0 billion in 1962 and to \$1.7 billion in 1963. (See table 9.) The goal of a \$1.0 billion reduction in the net balance was met as planned and without impairing the combat readiness of our forces or creating undue hardships for U.S. military personnel. After the close of the fiscal year, the President announced that the Department would achieve a further reduction of \$0.3 billion in the immediate years ahead.

Gross defense expenditures overseas have been averaging about \$3.0 billion annually, comprising \$2.4 billion for the pay and support of U.S. forces, \$0.3 billion for military assistance expenditures in foreign countries, and \$0.3 billion for the overseas defense activities of other Federal agencies, such as the Atomic Energy Commission. With rising wages and prices in foreign countries and increased U.S. overseas deployment since 1961, a major reduction in these expenditures could not be achieved, but the newly established controls made it possible to absorb the higher costs and keep gross Defense expenditures at about the same level as before. Numerous steps were taken to shift procurement wherever possible from overseas to the United States. The cost differential permitting such a shift was raised from 25 to 50 percent above foreign prices including transportation costs, thereby permitting during fiscal year 1963 the purchase in the United States of about \$75 million in goods and services that would otherwise have been bought abroad. New case-by-case review procedures for procurement actions under the Buy American Act returned an additional \$8.3 million in procurement to U.S. sources. Other contributions to lowering Defense spending abroad included more stringent reviews

of oversea construction projects, reductions in the employment of foreign nationals, further restrictions on offshore procurement for the military assistance program, and voluntary reductions by U.S. personnel in their individual purchases overseas.

The major contribution to the improved Defense balance of payments, however, was made through the increased purchase by our allies of U.S. weapons, equipment, and services. Receipts from such actions rose from \$0.3 billion in fiscal year 1961 to \$1.3 billion in 1963. While allies all over the world contributed to this increase, the bulk of it represented payments by the Federal Republic of Germany for U.S. arms and for the operation of joint logistics systems in support of German as well as U.S. forces.

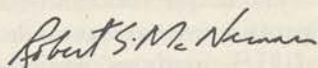
To reach the new target for a further \$0.3 billion reduction in Defense spending abroad, the existing programs will have to be carried out with increased effectiveness. In this connection, the establishment in July 1963 of standard accounting and reporting systems for Defense international transactions should prove helpful.

The many and varied roles assigned to our armed forces also included emergency assistance to the unfortunate victims of natural disasters, such as the thousands of Iranians made homeless in September 1962 by the worst earthquake in that country's history, the many Moroccans driven from their villages by raging floods in January 1963, and the inhabitants of Santa Maria Island in the Azores cut off from food shipments for 6 weeks by high seas. Navy ships on good-will cruises distributed over 5 million pounds of clothing, medical supplies, and other gifts to needy recipients at ports of call. In addition, U.S. armed forces continued their support of United Nations emergency operations by the airlift and sealift of troops and supplies to and from the Congo and assistance to the U.N. observation mission assigned in Yemen in 1963.

Military cooperation between the United States and its free world partners is based on the recognition that the security of each one is enhanced by joint action and endangered by isolation. This fact is as relevant for the United States as it is for its allies. Military assistance is extended to further mutual interests and the results obtained are of mutual benefit.

In the present world situation, the maintenance of effective armed strength constitutes not only the best insurance against aggression but also the prerequisite for any meaningful negotiations to ease world tensions. During fiscal year 1963, our demonstrated willingness to use this strength in the defense of our vital interests was followed by the test ban treaty—the first major agreement on the road to avoiding the disaster of unlimited nuclear warfare. By continuing on

the course charted for our current defense programs, we will be able to follow confidently the late President Kennedy's injunction: "Let us never negotiate out of fear. But let us never fear to negotiate."



ROBERT S. McNAMARA,
Secretary of Defense.

ANNEX

Contents

	Page
Annex A. ANNUAL REPORT OF THE RESERVE FORCES POLICY BOARD-----	59
Annex B. ANNUAL REPORT OF THE DEFENSE SUPPLY AGENCY-----	73
Annex C. ANNUAL REPORT OF THE OFFICE OF CIVIL DEFENSE-----	87

Annex A
ANNUAL REPORT
of the
RESERVE FORCES POLICY BOARD
July 1, 1962, to June 30, 1963

The reserve program is based upon its essentiality for the attainment and maintenance of the military posture of the armed forces required by our overall national security. An effective reserve program in each of the military Services provides an integral part of the total capability of the armed forces to accomplish their missions. Together they form a strong deterrent to war and assurance of peace.

This report on the status of the reserve programs of the armed forces, as required by law, additionally reflects the reserve components' mobilization potential and the effectiveness of their response during the most recent partial mobilization.

The Reserve Forces Policy Board (RFPB), operating under statutory authorization and the supervision of the Secretary of Defense, continually examines and studies the armed forces' reserve components and makes recommendations on policy and legislation affecting them.

New members either designated by law or appointed by the Secretary of Defense during the reporting period are: Hon. Brockway McMillan, Under Secretary of the Air Force; Lt. Gen. W. H. S. Wright, USA; Maj. Gen. Stuart deJ. Menist, USAR; Rear Adm. William M. McCloy, USNR; Maj. Gen. Curtis R. Low, USAF; Brig. Gen. Donald S. Dawson, USAFR; and Rear Adm. Louis M. Thayer, Jr., USCG.

In its four sessions during fiscal year 1963, the Board considered a number of major matters of policy, principal among them being:

1. Reserve force structure;
2. The rapidly declining strength of the Ready Reserve;
3. Authorization of a Reserve Emergency Service Medal for reserves serving on active duty during the Berlin buildup and the Cuban crisis;
4. Reenlistment bonuses for some enlisted members of reserve components; and
5. Procurement of officer personnel. Losses are reaching serious proportions in all reserve components.

The foregoing were the subject of presentations and discussion at more than one RFPB meeting during the year. In addition, the Board addressed itself to other matters and directed particular attention to various items of proposed legislation, both those originating within the Department of Defense and those referred to the Department by a committee of the Congress for comment. In many of these legislative cases, the Board's recommendations were transmitted to the Secretary of Defense to aid in the formation of the Department's position.

Personnel

The strength of each reserve component in fiscal year 1963 is shown in tables 21 and 22 of the appendix.

The 6-month active-duty-for-training program is now in its eighth year of operation. During this time it has produced over 800,000 basically trained enlisted men for the Ready Reserve of the armed forces. However, an aspect of concern is that many of these men are not trained in the hard core skills needed if they are to be used as "fillers" to bring mobilized reserve units to full strength.

To remedy this situation, the Board recommended more flexibility in the program so each man enlisted for a hard core skill position may be retained on active duty for training for as long as necessary to acquire proficiency in his particular skill. The number of participants in the 6-month active duty for training program during fiscal year 1963 is shown by component in table 24.

The continuous screening of the Ready Reserve required by Section 271, Title 10, U.S.C., caused the armed forces to screen a total of 2,977,324 personnel records during fiscal year 1963. As a result, 879,196 men were released from a Ready Reserve status—363,553 transferred to the Standby Reserve status or the Retired Reserve and 515,643 discharged. This procedure helps to insure that the Ready Reserve is manned with qualified personnel readily available for mobilization.

Reserve Officers Personnel Act (ROPA)

The Reserve Officers Personnel Act, as amended (codified in titles 10 and 14, U.S.C.) has dealt adequately with most reserve officers' promotion and attrition problems. A normal flow of promotions has been maintained despite (1) "humps" created by accelerated promotions during World War II, and (2) the "pusher clause" in the Air Force section of ROPA. Although the "pusher clause" was eliminated in 1960, its effects will remain until 1972.

The omnibus amendments of 1960 granted temporary authority for the Army and Air Force to exceed grade ceilings to allow promotion of officers to fill reserve unit vacancies, thereby eliminating the "humps" as a bottleneck in the flow of promotions. This authority expires as of June 30, 1964, and unless it is extended, or other relief given, unit promotions will be affected for a considerable period.

Mandatory promotions are having some adverse effects on the unit manning and operational readiness of the Army and the Air Force, when experienced officers are promoted out of units for lack of unit vacancies in the higher grades and no qualified replacements are available. The 3-year declination period offered temporary relief for the Army in this situation. However, some loss of trained officers who hold key positions will deteriorate the mobilization readiness of the particular reserve component units affected. The situation in the declination-of-promotion area requires attention. Since all qualified officers of the same rank who are members of units are considered at the same time, there are many cases in which the declination period begins as much as a year ahead of the officer's promotion eligibility date. Action should be initiated to dispose of this inequity.

If the Bolte Committee recommendations were to be enacted as amendments to the Officer Personnel Act, certain parallel changes will be required in ROPA.

The Board plans to have Service reports on the operation of ROPA in their reserve components at its first meeting in fiscal year 1964, and to determine, on the basis of these reports, whether additional legislative or administrative action is required to increase the effectiveness of the act.

Army Reserve Components

Experience gained from partial mobilization of the reserves in the recent past dictated that steps be taken to find solutions to the problems encountered. It was evident that any future plans for improving the combat readiness of the reserve components must evolve around a higher manning level, more advanced training, the provision of more modern equipment, and the selection of priority units in accordance with current contingency requirements. It was also recognized that obsolete units and those in excess of contingency requirements must be eliminated. These revisions applied particularly to the Army's reserve forces, since their comparative size in ratio to the other reserve components multiplied the problems—problems which indicated a degree of incapability of meeting the increased requirements for readiness essential to national security.

A revised plan for reorganization of the Army reserve components was presented to the Congress in mid-1962 which provided for assigning 66 percent, instead of 47 percent, of all Ready Reservists to priority units, including six combat reserve divisions. It called for the realignment of four Army National Guard and four Army Reserve divisions to form priority brigades, eliminating more than 1,700 obsolete or excess units but adding about 1,000 new units required by current plans.

After various conferences, necessary refinements of troop structure, and other preparatory actions, the over-all plan was implemented in the early part of 1963. An essential feature of the reorganization was the authorization of higher strengths for the high priority units to assist in improving their combat readiness.

Other provisions of the reorganization of the Army reserve forces, in line with the objective of higher combat readiness, were: (1) That the same recruiting standards apply to the reserve components as to the active Army, (2) that reserve units may not exceed their authorized strength except to cover certain temporary personnel dislocations due to the reorganization, and (3) that at least 90 percent of the men in each reserve unit be qualified by experience and training for their respective positions. These requirements are contributing to improved readiness, although they are making it difficult for many unit commanders to maintain authorized strength.

Reorganization of the Army reserve forces was completed a month ahead of schedule. As a result, the 23 Army National Guard divisions and the 6 USAR divisions were functioning under the new ROAD concept in time to allow summer camp training under the new structure.

Army National Guard

The number of federally recognized units in the Army National Guard as of June 30, 1963, was 4,005. Included were: 17 infantry divisions, 6 armored divisions, 5 command headquarters (divisional), 7 brigades (inf.), 3 brigades (AD), 9 infantry battle groups, 5 corps artillery (HHB), 7 armored cavalry regiments, 3 special forces groups, and 12 companies, and 1,709 combat and service support units and detachments. The reorganization and realignment caused a decrease of 4 infantry divisions and 308 other units from the fiscal year 1962 totals. The June 30, 1963, strength of the active Army National Guard was 361,080, of whom 33,924 were officers and 327,156 enlisted men. These figures include 28 officers and 338 enlisted personnel of the Alabama Army National Guard called to active duty in June 1963.

In August 1962, Army National Guardsmen in 446 units returned to State status after participating in the partial mobilization for the Berlin crisis. The problems concerned with the return of the mobilized units to State status had

not been completely resolved when the major reorganization began in January 1963.

During fiscal year 1963, 35 on-site NIKE-AJAX batteries were reorganized into 20 NIKE-HERCULES and commenced conversion training. There were 4 NIKE-HERCULES batteries activated and training begun in areas where the Guard had not previously participated in the on-site Air Defense Program. The 45 armory status NIKE-AJAX training batteries in CONUS and the 2 in Hawaii were deactivated or converted to another type of unit. Army National Guard on-site units, in competition with their active Army counterparts, won both the ARADCOM Commander's trophies for the outstanding firing battery and outstanding firing battalion for fiscal year 1963. A total of 34 NIKE-AJAX and 22 NIKE-HERCULES batteries were operational on-site and 14 NIKE-HERCULES batteries were undergoing conversion training as of the end of fiscal year 1963. This represents a reduction of 5 on-site batteries during this reporting period. Operational readiness evaluation scores for this type of unit showed an over-all improvement of 4 percent over last year.

Each Army National Guard unit in State status conducted a minimum of 48 inactive duty training assemblies, at least 6 being extended periods on weekends. Training assembly attendance averaged 92 percent. Annual general armory inspections for fiscal year 1963, by Army area commanders' representatives, found 99.4 percent of the units inspected to be satisfactory or above, and, of these, approximately 81 percent were rated excellent or superior.

All units conducted annual field training in fiscal year 1963 with approximately 320,000 Guardsmen attending. One significant accomplishment of this training was the establishment of the live-fire squad/platoon rifle attack courses. These courses gave the troops a basic concept of live-fire battle drill and the teamwork required under combat conditions.

Army service schools enrolled 7,302 Army National Guard personnel during fiscal year 1963. In addition, 2,110 Guardsmen attended Army area schools. The special officer candidate courses for Army National Guard enlisted men, at Fort Benning, Ga., and Fort Sill, Okla., had 459 Guardsmen enrolled. The District of Columbia, Puerto Rico, and all States except Alaska have accredited Army National Guard State Officer Candidate Schools which enrolled approximately 3,000 officer candidates during fiscal year 1963 and are the main source of second lieutenants for the Army National Guard. Approximately 650 officers and enlisted men with an aviation MOS attended aviation courses. Guardsmen who could not attend a resident course completed extension courses.

Personnel losses during fiscal year 1963 were abnormally high and were attributable to the Berlin crisis mobilization, the expiration of enlistments involuntarily extended during that period, and the reorganization uncertainties which hampered recruiting during the first half of the fiscal year. A decrease in the Army aviator strength was attributed to: (1) The decision of 52 Army National Guard aviators with mobilized units to stay on active duty; (2) the effects of ROPA (155 were discharged or resigned); and (3) response to the active Army's intensified recruiting efforts to get aviators to apply for extended active duty.

Action was taken in the second half of the fiscal year to overcome those losses. Accelerated recruiting efforts allowed procurement of 3,000 more nonprior-service personnel than the previous 5-year annual average. The new "Flexible Enlistment" program allowed a Guardsman to extend his enlistment for as little as 1 year or as much as his remaining obligation, and the "Try One" program permits men with previous military service to enlist for a 1-year trial period.

The nucleus of Army National Guard military personnel is the technicians. They are the federally recognized members of the Army National Guard employed

by the States in the day-to-day administration of the Guard units, in the training of personnel, maintenance and repair of equipment, supply and accounting duties, and in keeping NIKE missile sites operational 24 hours each day in the air defense of the Nation. Of the 22,679 technicians employed at the end of fiscal year 1963, 4,976 were engaged in NIKE air defense.

Efforts continued to place an appreciable amount of modern, effective equipment in the hands of the Army National Guard. Careful planning and maximum utilization of available equipment enabled units to perform their training mission. The workload of normal maintenance, the acceptance of "as is" equipment from the active Army, and modification work orders taxed the field maintenance shops to capacity. However, trained organizational maintenance personnel, a controlled second echelon maintenance program, and field maintenance performed by the combined field maintenance shops made it possible to perform the required rehabilitation of equipment.

The Army National Guard operated three fourth echelon aircraft maintenance shops which are integrated into the over-all Army aircraft maintenance capabilities under the "One Army" concept. Guardsmen in these shops work on aircraft of the active Army, Army National Guard, and the Army Reserve.

A new asset reporting system, conforming with that of the active Army, was implemented to provide accurate and timely information and a management tool that would expedite requirement planning and distribution programs.

Major shortages of armored personnel carriers, self-propelled artillery, signal equipment, and aircraft—items for which the active forces have unfilled requirements—had the greatest impact on training.

During fiscal year 1963, the Army National Guard contracted for 55 armory construction projects with a total Federal contribution of \$8,497,312. Seventeen other construction projects were also placed under contract with \$2,800,094 in Federal funds. Additional obligations for minor construction and architectural engineering totaled \$966,817. The total obligations for fiscal year 1963 were \$12,264,223.

Since fiscal year 1953, under the National Defense Facilities Act, as amended, Federal contributions for Army National Guard armory construction have amounted to \$167.7 million, and \$30.6 million for nonarmory construction.

U.S. Army Reserve

As of June 30, 1963, the Army Reserve was authorized the following organizations and units: 6 combat divisions, 13 training divisions, 4 command headquarters (divisional), 2 maneuver area commands, 4 brigades (3 inf., 1 mech.), 4 engineer brigades (HHC), 1 corps artillery (HHB), 5 special forces groups and 15 special forces companies, 14 commands, 35 centers, 7 depots, 79 groups, 142 battalions (separate), 115 battalion headquarters, 15 corps augmentations, and 1,328 separate company-size units. Altogether, the Army Reserve totaled 4,164 units, participating in annual active duty training and 48 inactive duty training assemblies. The June 30, 1963, Army Reserve paid-drill training strength was 236,985, and an additional 47,197 Ready Reservists had paid active duty for training in fiscal year 1963.

In August 1962 Army Reservists in 297 units returned to an inactive status after having been called to active duty because of the Berlin crisis.

School training for Army Reserve personnel is provided through attendance at active Army service schools, Army area schools, USAR schools, and Army extension courses, particularly the latter two. One-hundred fourteen USAR schools are currently operating, 7 outside the continental United States. Nineteen career officer courses and Command and General Staff College courses are offered for Army Reserve officers.

As of June 30, 1963, there were 2,693 officers and 1,231 enlisted men assigned as staff and faculty of USAR schools and 18,985 students were undergoing training. Approximately 6,448 USAR students attended Army area schools and 7,450 attended active Army service schools during this reporting period. The experimental Army Intelligence USAR language training program, initiated in 1960, is now established on a continuing basis. Upon graduation, USAR personnel return to their AI-USAR combat intelligence units for 4½ years of mandatory Reserve duty participation.

During fiscal year 1963, 634 USAR aviators were assigned to TOE/TD units in the ZI and participated in the USAR aviation program. An additional 157 Ready Reservists participated in the program in order to maintain flight proficiency.

The Army considers that 485 aircraft are needed for assignment to Reserve aviation units, as presently organized, to maintain minimum unit training standards and to support USAR aviation flight proficiency requirements, but only 119 aircraft are currently assigned. A very limited number of aircraft are now scheduled for issue to the USAR during fiscal year 1964. These adverse factors indicate that the established program for contractual hire of civil aircraft remains the largest single factor contributing to the readiness of USAR aviators since no other means will be readily available to compensate for the acute shortage of Army aircraft within the USAR, and for the widely scattered geographical locations of USAR aviators, until higher priority requirements of regular Army units for aircraft are filled.

At the end of fiscal year 1963, 3,678 USAR civilian technicians were authorized for the Army Reserve and 3,399 actually assigned. This was an increase of 323 over the actual strength as of the end of fiscal year 1962.

The records of Standby and Retired Reserves have been centralized at the U.S. Army Records Center, St. Louis, Mo. The transfer of these records from the 14 U.S. Army corps occurred between July 1962 and March 1963. Recent reports of inspection and evaluations of this program indicate a successful operation. This improved records management provides a more reliable and responsible mobilization capability and, in addition, has relieved the corps headquarters of a major administrative burden.

During this reporting period moderate gains were realized in the equipment status of the Army Reserve. Appropriated funds permitted an increase of approximately 10 percent in the inventories of stock-funded equipment. As of the close of this period it is estimated that inventories amounted to 54 percent of the training requirements, which were increased during the year when additional units were placed in higher priority status.

Self-propelled howitzers, bridging equipment, communications equipment, aircraft, trucks, and tractors, which are in national short supply, are major items necessary to bring the Army Reserve equipment up to the desired readiness status.

Fiscal year 1963 programing of Army Reserve centers included 28 projects, to provide facilities for 10,950 unit reservists and also certain items omitted from 221 Reserve center projects of previous years. The Congress authorized \$9.9 million for fiscal year 1963 projects and the acquisition of associated real estate; \$8 million was appropriated, and authority was granted to use \$2 million of accumulated savings.

Twenty-three Army Reserve centers, 2 additions, and 1 maintenance shop, at a cost of \$5,876,296, were placed under contract in fiscal year 1963. Nine of these Reserve centers were joint projects with other reserve components. Thirty-six Army Reserve centers and 4 additions were completed at a cost of \$10,613,362. Eight of the completed centers were joint construction projects.

Fourteen construction sites were made available during this period, 8 by acquisition directives issued in prior years and 6 by fiscal year 1963 acquisition directives. Acquisition directives were also issued in fiscal year 1963 for two Reserve center sites which are not yet available.

During this period the leases on 170 facilities occupied by troop program units were canceled, lowering the number of leased facilities to 563. This reduction of leased facilities is a continuing program.

Naval Reserve

The over-all readiness of the Naval Reserve is rated as good, under the continuing policy of requiring most reservists to perform 2 years of active duty after which the reservist returns to a drill unit with a substantial basic naval education with which he should have little difficulty in advancing to petty officer status. Even though the reservist does not elect to enter a drilling program, it is not likely that he will lose the skills acquired on active duty, to any serious degree, during the remainder of the time he legally is obligated as a reservist.

The Selected Naval Reserve, established in 1958 within the Ready Naval Reserve, drills and trains constantly to be ready and available for mobilization. They carry precut orders which enable them to report immediately to their active duty billets. The total planned strength of the Selected Reserve is 252,000. This will include an ultimate strength of 135,000 in a drill-pay status and 117,000 in nondrill/nonpay status preselected and preordered to man reactivated Reserve Fleet ships and to provide additional fleet and shore establishment support.

The over-all size of the Naval Reserve decreased from 624,000 in June 1962 to 531,000 in June 1963. The retained personnel are well qualified. More enlisted personnel are returning from 2 years' active duty and are affiliating with drilling units, thereby providing the drilling segment of the Naval Reserve with recent active duty experience.

Personnel requirements that would be impaired by a complete mobilization of the Naval Reserve could not be fully met from present on-board active status strengths because there has been an increased number of specific designator and rating areas where numbers fall short and because the requirements themselves have increased in some of these areas. Resort to reliance on qualified and available nonactive Standby and Retired personnel has had to be made in attempting to satisfy these mobilization needs. In addition to normal expirations of enlistments and attritive screening, the Naval Reserve has been directly affected by recent increases of numbers of personnel retained on active duty. Other influencing factors include a trend toward lessening obligations and adverse reaction to recalls in national emergencies which has served to decrease the willingness of some individuals to remain in an active status.

In March 1963, the basic training concept for Naval Reserve Surface and Electronic Divisions of the Fleet Augmentation Component was revised. Until that time all training had been aimed primarily at advancement in rating of enlisted personnel. The influx of the 2-year and 4-year active duty experienced men in a variety of ratings and pay grades, and the resultant inability to adhere to division training allowances in accepting returnees into divisions, produced a training requirement that was not satisfied by the established rate-training programs.

To provide a realistic training program designed for men with fleet experience, as well as rate-training of preactive-duty personnel, training guidelines were published which place heavy emphasis on practical and operational team training for returnees. Volume I of a new "Naval Reserve Team Training Guide" was published. Two additional volumes were under preparation as the fiscal

year ended. Development of a "common core" curriculum which cut across rating and pay-grade lines was stepped up. The "team ACDUTRA" concept, where members of a unit cruise as a group instead of individually, was instituted. Competition rules and inspection guides were revised to reflect the changed point of view.

Progress was achieved during fiscal year 1963 in providing formal class "A" school training to enlisted reservists. There are now two active programs in operation: The first, the "Accelerated Class 'A' School Program" has been in existence for a number of years. Changes in it during fiscal year 1963 include an increase in the numbers trained and the requirement that trainees agree to drill for 2 years subsequent to their active duty tours in return for the training received. The second program, newly conceived and instituted during fiscal year 1963, provides for the assured assignment of limited numbers of highly qualified reservists to Class "A" schools as their initial duty station, the quota being based on "short-falls" from the regular activities caused by attrition. Trainees under this program are also required to agree to drill when they complete their active duty. Those who attend a school course longer than 20 weeks must extend their active duty obligation to 3 years.

During fiscal year 1963 the Naval Air Reserve completed plans for implementation in fiscal year 1964 of several programs to improve its mobilization effectiveness. These included:

- (1) An extensive reorganization and realignment of aviation squadrons and personnel allowances which will result in a total of 227 squadrons and 123 other units.

- (2) The authorization by the Secretary of the Navy of the 6-month program for the Naval Air Reserve as a permanent one and preplanning to expand the program in fiscal year 1965. This program provides Class "A"-schooled aircrew and maintenance specialty personnel.

- (3) Authorization to reinstitute the 85-day accelerated training program with an initial input of 500 in fiscal year 1964 to provide preactive-duty Class "A" school training in technical group IX ratings.

Continuing efforts to include more modern ordnance equipment in the reserve training program concentrated on 3"/50-cal. rapid-fire gun mounts, and gunfire control systems MK 63. These are programed for new training centers providing training in GM and FT ratings. Three 3"/50-cal. gun mounts have been included in the fiscal year 1964 budget and 21 more in the 5-year program. Seven GFCSMK 63 gunfire control systems have been included in the fiscal year 1964 budget with an additional 16 in the 5-year program.

Operation CLEAN SWEEP, begun in midfiscal year 1961, was completed in fiscal year 1963. The 10,003 excess items of test equipment that Naval Reserve Training Centers had on hand have been reduced to less than 1,000, the majority of which can be used. By the end of fiscal year 1963 Naval Reserve training activities had received about 90 percent of their electronic training and test equipment allowances, an appreciable amount of which is yet to be installed.

The Naval Air Reserve mobilization potential has been improved by: (1) the introduction of high-performance jet fighter aircraft, with two squadrons training in the afterburner-equipped F-6 (F4D) and the F-8 (F8U) (also afterburner equipped) scheduled for fiscal year 1964 inclusion in the reserve inventory; (2) the installation of additional electronic submarine detection equipment in land- and carrier-based fixed-wing aircraft; and (3) by completed redesignation of all helicopter utility squadrons as antisubmarine warfare squadrons. The present operating aircraft inventory totals 829, an increase of 124 over last year.

Naval Reserve training surface activities, maintained at a level of 451 during fiscal year 1963, were grouped as follows on June 30, 1963:

Naval Reserve Training Centers-----	158
Naval Reserve and Marine Corps Reserve Training Centers--	142
Naval Reserve Training Facilities-----	12
Naval Reserve Electronic Facilities-----	139

The training activities vary in size from a 3,100-square-foot electronic facility to a five-division Naval Reserve training center with over 35,000 square feet.

Joint utilization with other reserve components has been achieved as follows:

- 142 with the Marine Corps Reserve (6 have been or will be designated armed forces reserve training centers)
- 126 with the Coast Guard Reserve
- 17 with the Air Force Reserve
- 38 with the Army Reserve
- 8 with the Army National Guard

Despite reduction, consolidation, construction, and rehabilitation, the Naval Reserve has 280 over-age and/or inadequate facilities. Major improvement or replacement construction projects completed during fiscal year 1963 consisted of 3 replacement Naval Reserve training centers and 5 replacement Naval Reserve electronics facilities.

Naval and Marine Reserve aviation components currently occupy 12 naval air stations and 6 Naval Reserve training facilities. A Marine Air Reserve training detachment is currently being supported by each naval air station and Naval Reserve training unit except one.

Many of the naval air station facilities are over-age or inadequate in size or type of construction. A program to rehabilitate existing facilities was initiated in fiscal year 1963 and this program with a follow-on program in fiscal year 1964 will alleviate this problem and provide facilities requiring lower annual costs properly maintainable within current budgetary limitations. These programs will require approximately \$3 million annually over a period of 5 years.

Marine Corps Reserve

The strength of the Marine Corps Ready Reserve continued to decline during this reporting period, with Ready Reserve personnel assets at end of fiscal year 1963 not sufficient for the desired rate of mobilization expansion. Standby Reserve personnel could be used to compensate for this deficiency.

Since the reorganization of the Marine Corps Reserve in July 1962 to provide units (1) basic to the 4th Division/Wing Team, (2) required to support a force structure of four Marine division/wing teams, and (3) to train individuals to augment units either mobilized from the Reserve or in the active establishment, most of the Ready Reserve personnel have been assigned within this framework. Most of these units are organized under the T/Os and T/Es used in the active establishment, but are not authorized full T/O strength, and were authorized only those items of equipment required to support training, the rest being kept in the supply system.

Prior to this reorganization, the Marine Corps Reserve only trained individuals to fill vacancies in the active force units and those needed to form additional units. This reorganization increased the flexibility of the Marine Corps Reserve and its responsiveness to mobilization requirements of varying kinds and magnitudes.

Significant progress was made by these redesignated units during fiscal year 1963. However, more is desired, particularly in technical fields. Except for some units in technical fields, Marine Corps Reserve units would require a minimum of postmobilization training prior to deployment. This status is attribut-

able to the multiple drill periods required in home armory training, the 6-month training program, and the close relationship between active and Reserve units resulting from the hosting of reserve units by regular Fleet Marine Force units during annual training.

In recognition of the increased requirements for technical training, a voluntary extended technical training program was implemented for 6-month trainees; individual active duty for training in technical skills was increased; and additional inactive duty flying training periods were initiated during the middle of fiscal year 1963 to improve flight proficiency. Continued emphasis on and expansion of these individual technical training programs will be required to obtain the desired state of readiness.

The status of unit and individual equipment of the ground units continues to be satisfactory. Full allowances of unit equipment, except truck wreckers (M543) and the Ontos (rifle SP 106-mm. M50), were available upon requisition.

The Semi-Annual Reserve Equipment Report, instituted in 1962, listing total Marine Corps Reserve assets for mobilization purposes, was refined to provide additional information. Combat readiness of units was substantially increased by the immediate reporting of, and immediate action necessary to eliminate, deficiencies of essential equipment as they occur.

The Chief, Naval Air Reserve Training, provides the Marine Air Reserve with facilities, aircraft, and related equipment. Modernization of the aircraft inventory continued in fiscal year 1963 with the introduction of the F-6A (F4D-1), an afterburner aircraft, and the replacement of certain A-4A (A4D-1) aircraft with the A-4B (A4D-2). Special support equipment was received to accommodate the F-8A (F8U-1) aircraft scheduled for receipt early in fiscal year 1964. Modernization of Marine Corps radar equipment occurred with acquisition of the AN/TPQ-10 for radar course directing control. Replacement of other air control equipment is programed for fiscal year 1964 and fiscal year 1965.

A lack of suitable helicopters for training is a continuing problem, being overcome in part by sharing Navy-configured antisubmarine helicopters with the Navy, which is not entirely satisfactory because it precludes working with troops. Solution of this problem requires suitable helicopters in adequate numbers, which should become available to reserve units after the higher priority needs of active Marine Corps units have been satisfied.

As of the end of this reporting period Marine Corps Reserve units occupied 223 facilities, 16 less than a year ago because of deactivation of units. Occupancy of the 223 facilities is as follows:

- 140 Joint Naval and Marine Corps Reserve Training Centers
 - 6 Armed Forces Reserve Training Centers
 - 2 Joint Army and Marine Corps Reserve Training Centers
 - 48 federally owned exclusively Marine Corps Reserve Training Centers
 - 9 commercially leased exclusively Marine Corps Reserve Training Centers
- 17 Naval Air Stations
 - 1 Air National Guard base.

Ground unit training centers were improved to provide more adequate facilities. They included the following: Alteration of 6 training centers to increase the training potential of available space; paving and/or repairing of 3 drill-field/vehicle-parking areas; installing security fences at 3 installations; replacing storm windows in 2 installations; and installing a new sewage system in 1 facility.

These meet only part of the requirements, as inadequate funding has caused a 2-year backlog of both minor construction and major repair. Most minor construction projects pending result from adoption of weekend drills and redesigna-

tion of certain ground units in 1959 and 1962. The lack of funds to make major repairs as needed increases eventual repair costs while reducing the life expectancy of the structure. Each year this situation continues it becomes more critical.

Air Reserve Forces

The effectiveness of the Air National Guard and the Air Force Reserve was tested a second time within 2 years during the Cuban crisis in 1962. The numbers of units and men recalled were fewer than in the Berlin contingency and the active duty shorter (30 days). However, when eight troop carrier wings (24 squadrons) and six aerial port squadrons of the Air Force Reserve were ordered to immediate active duty, more than 93 percent of the assigned personnel of these units were present for duty within 24 hours. Troop carrier units reported for duty with 75 percent of their aircraft operationally ready. These units were operational and could have been deployed on the first day.

Air National Guard (ANG)

Air National Guard personnel strength increased from 50,319 on July 1, 1962, to 74,325 on June 30, 1963, partly through the return of units mobilized during the Berlin contingency operation. However, strength declined steadily from the return of the units in August 1962 until the end of January 1963. From a low of 66,976 on January 31, 1963, the ANG achieved a net gain of 7,349 by the end of the fiscal year, a 10.9 percent increase in 5 months.

Much of the net gain was the result of recruiting prior-service airmen and retaining trained members of the ANG. The "Try One" program was implemented, whereby personnel with completed military obligations can enlist for a 1-year trial period. It increased both longer enlistments and short-term enlistments. The nonprior-service input into the ANG during the fiscal year was 10,701.

During fiscal year 1963, ANG assigned aircraft increased from 1,216 on hand July 1, 1962, to 1,566 on hand June 30, 1963, primarily due to the return to ANG status of units federalized for the Berlin contingency. During the year, air transport units received KC-97G aircraft, and the KC-97F models were declared excess. Conversion of ANG aeromedical transport units from C-119's to long-range four-engine aircraft continued. Four squadrons are now equipped with C-121's and the remaining five have begun conversion to C-97's and C-121's. The three F-104 squadrons which served in Europe during the Berlin contingency have undergone conversion. With the transfer of the F-104's from the ANG to the active force, two of these units retained their air defense mission with F-102's, and the third converted to C-97's with an air transport mission.

Serious problems were created by the retention of most of the ANG F-84F's in the active Air Force when recalled units were returned to ANG status in August 1962. Aircraft which remained in the ANG were reapportioned among the units, but the number of aircraft available to the affected squadrons was so low as to impair the ability of some units to maintain aircrew readiness at desired levels.

Continuous emphasis is being placed on the buildup of ANG unit equipment to further the "Ready Now" concept. The Air Force Equipment Management System was adopted by the ANG on December 1, 1962. ANG equipment documents were phased out and replaced by standard USAF documents. Mechanization of base supply accounts is continuing on schedule with 64 bases now mechanized.

Continuous progress was made in the ANG military construction program for runway extensions, hanger additions and modernization, communications facili-

ties, maintenance docks, and other projects. Construction appropriations are cumulative, providing "no year" funds. Of \$23,953,799 available in fiscal year 1963, including a \$14 million new appropriation, contracts were awarded and funds obligated in the amount of \$17,270,936, covering 72 percent of the construction program. Additionally, projects totaling \$2,047,000 were advertised for bids in June 1963.

Air Force Reserve (AFR)

During fiscal year 1963 the strength of the Air Force Ready Reserve declined from 203,476 on July 1, 1962, to 168,382 on June 30, 1963, while drill-pay strength increased from 58,444 to 58,607. Standby Reserve strength dropped from 184,766 to 116,874.

A major factor in the strength decrease was the overlap in terminations of military service obligations of 8-year obligors who enlisted in 1954 and 1955 and 6-year obligors who enlisted in 1956 and 1957. The majority of these losses were from the Standby Reserve and the ineligible section of the Ready Reserve.

A gain in drill-pay strength of some 2,000 in troop carrier wings and other Category A units was offset by a loss of approximately 1,000 in Category B units following limitations on personnel strengths and operating costs for the recovery unit program. Further losses were the result of discharges of non-obligated reservists for nonparticipation and transfers to the Retired Reserve.

Drill-pay strength of the Air Force Reserve declined after the return of units mobilized for the Berlin contingency to a low of 52,779 as of February 28, 1963. Continental Air Command and the Air Reserve Records Center renewed emphasis on mandatory assignment of nonparticipating obligors and began a concerted effort to attract prior-service airmen. In June the AFR was given authority to implement the "Try One" program which had been in operation in the ANG for several months. The net gain between February 28 and June 30, 1963, was 5,828, a gain of 10.9 percent in 4 months. The nonprior service input into the AFR during the fiscal year was 3,500.

The AFR aircraft inventory was increased from 726 to 734 during fiscal year 1963. All C-119 squadrons are now operating with a UE of 16 assigned aircraft and no support aircraft. Twenty-three C-119J aircraft were declared excess to requirements and 24 C-119G aircraft were transferred to the military assistance program. The MAP program also took six C-123B aircraft.

The five C-124 squadrons which entered active duty with 47 aircraft in October 1961 returned to inactive duty in August 1962 with only 28, the remainder having been retained by the active establishment. An additional 8 C-124's were transferred to the Military Air Transport Service during the fourth quarter of the fiscal year, leaving a total of 20 aircraft in the five squadrons.

In equipment other than aircraft, AFR troop carrier reorganizations and changes in mobility requirements caused increases in equipment authorizations and corresponding decreases in the percentage of equipment on hand. Reallocation of total resources is expected to improve the equipment situation in these units.

Air rescue squadrons had more than 94 percent of their required equipment on hand, but other Category A units, notably the mobile communications and air terminal squadrons, still had considerable shortages. Progress was hampered by shortages in the recovery units because of the nonavailability of certain needed items from surplus and excess stocks. The equipping policy for the recovery units is being modified to allow issue of essential equipment from existing Air Force stocks without replacement through new procurement.

Limitation of the AFR Military Construction Program to \$5 million restricted

construction to meeting the most urgent operational deficiencies. There is currently a backlog of needed projects which would require \$17 million per year in fiscal year 1965 and fiscal year 1966. More effective utilization of available funds has resulted from efforts to reduce costs by using lesser facilities than those recommended for active forces use. Notable examples are in the construction of wash racks and maintenance docks for the AFR.

Coast Guard Reserve

Coast Guard Reserve readiness is not entirely satisfactory at this time in view of the continuing over-all decline in Ready Reserve strength. The inadequate Organized Reserve unit strength compared to mobilization requirements for vessel manning and the continuing lack of adequate training equipment and vessels for the Organized Reserve are serious deficiencies.

During fiscal year 1963, the total strength of the Coast Guard Ready Reserve, not on active duty, decreased from 31,334 to 29,059, which represents only 73 percent of the 39,600 authorized ceiling, and a decrease of 7 percent from last year. The drill-pay status increased from 15,102 to 16,277. The immediate mobilization requirement to be met by personnel in drilling units is 3,000 officers and 23,000 enlisted personnel. The capability to meet this requirement has increased 6 percent over last year, units now being at 63 percent of planned strength.

Training in a drill-pay status is provided in 247 organized units, with 209 additional personnel training in various inter-Service training units. Volunteers in a nonpay status are assigned to either the 20 Coast Guard volunteer training units, 9 Organized Reserve port security units, or inter-Service training units.

As of the end of this reporting period there were 123 organized units designated as operational port security training units, with 927 officers and 9,147 enlisted personnel assigned. In fiscal year 1963, 58 of these units were further organized under 21 Organized Reserve port security units in which 1 or more units train as a team, usually in the same area as their prospective mobilization assignments.

Personnel training for vessel augmentation and activation number 411 officers and 2,947 enlisted, distributed among 58 vessel augmentation Organized Reserve training units. Due to reevaluation of vessel manning requirements for mobilization, increased emphasis will be given to this type of training during fiscal year 1964.

During the past fiscal year, two pilot coastal force units were established on the West Coast, and a coastal force training program was developed.

Emphasis on operational port security training units has improved the effectiveness of the Reserve to provide immediate protection of port areas in the event of mobilization. This emphasis plus the closer alignment of the mobilization training programs of the specialty units insure that the Coast Guard Reservists are trained in skills vitally needed by the Coast Guard for M-day. The mobilization assignment system has been implemented to the extent of issuing orders for most Ready Reservists to billets in which they will be needed on M-day.

A general shortage of equipment for realistic training of port security units and vessels for underway training of vessel augmentation personnel continues to exist. A schedule for the orderly acquisition of adequate training equipment and vessels has been planned, and funds have been obtained for limited implementation in fiscal year 1964.

In the event of mobilization, unit operating equipment is to be provided by the Regular Coast Guard. Unit training equipment and training vessels will also be available to Reserve units activated upon mobilization or regular units as conditions indicate.

Due to its limited size, the Coast Guard Reserve utilizes training facilities of the other armed forces for drills, primarily those of the Navy, or existing facilities of Coast Guard operating units. In a few instances space is leased from other Government agencies or commercial interests.

The Coast Guard Reserve Training Center, Yorktown, Va., is used for year-round training for Reserves. During the summer a large variety of courses are taught for ACDUTRA personnel. During the other 9 months of the year, the center trains and graduates officer candidates and conducts many specialized and technical courses for both officer and enlisted personnel. Most of this facility is of temporary World War II construction. An orderly replacement program has been planned and will be implemented as funds become available.

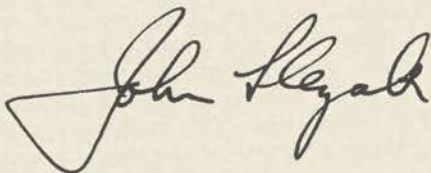
Reserve Officers' Training Corps

The Advisory Panel on ROTC Affairs operating under the Reserve Forces Policy Board held two meetings during the past fiscal year. New panel members appointed by the Board Chairman during this year are: Dr. Reuben A. Holden, Secretary, Yale University, New Haven, Conn.; Dr. John D. Millett, President, Miami University, Oxford, Ohio; and the Very Reverend Paul C. Reinert, S.J., President, St. Louis University, St. Louis, Mo.

The panel had two primary concerns during this year. The first was revision of DOD Directive 1215.3 that establishes policy guidance for the military departments on the conduct of ROTC programs and other equivalent officer candidate education or training programs, administered wholly or in part in degree-granting institutions during peacetime or under mobilization conditions.

The second was the Department of Defense legislative proposal to establish permissive authority to conduct ROTC programs of less than 4 years' duration; to increase certain ROTC cadet pay and emoluments; to allow certain increased administrative flexibility in the operation of the ROTC at the college and university level; and to permit the awarding of scholarship-equivalents to ROTC students under certain conditions.

Both the new DOD Directive 1215.3 signed by Secretary McNamara on February 5, 1963, and the legislative proposal forwarded by the Department of Defense on June 25, 1963, incorporated the recommendations of the Advisory Panel, which had the endorsement of the RFPB.



JOHN SLEZAK,
Chairman, Reserve Forces Policy Board.

Annex B
ANNUAL REPORT
of the
DEFENSE SUPPLY AGENCY
July 1, 1962, to June 30, 1963

This report covers the first full fiscal year of Defense Supply Agency (DSA) operations. During the year, DSA made substantial progress in the assumption of responsibilities as integrated manager of assigned supplies and services for the Department of Defense. Items centrally managed increased five fold and inventory by more than 40 percent.

Most of the missions and organizations initially assigned DSA had by the end of the fiscal year been successfully absorbed. In addition, a wholesale distribution system for assigned supplies was instituted; new management responsibilities for chemical supplies, packaged petroleum, and industrial production equipment were undertaken; and a major study of selected classes of aeronautical materiel was launched. Realization of all potential benefits of consolidated management was enhanced by the continued introduction of management improvements and the conduct of systems studies.

This major forward step in integrated Defense supply and service management has been taken without impairment of support to the military Services, as attested by DSA's high standard of performance during the Cuban crisis. Moreover, it has resulted in numerous economies in the Defense logistical establishment. All of these accomplishments have been due in no small measure to the cooperation of the military departments and the Office of the Secretary of Defense in working out the many difficult adjustments involved.

Assumption of Item Management Responsibility

DSA centers generally have met phased schedules established last year for the assumption of item management responsibilities. The Defense Petroleum Supply Center assumed management of packaged petroleum stocks on October 1, 1962; the Defense Construction Supply Center became fully operational on November 1, 1962; and the Defense Automotive Supply Center on July 1, 1963. The Electronics Center capitalized its first increment on December 1, 1962, and by the end of the fiscal year was centrally managing 389,000 items. Under an accelerated schedule, it will become fully operational on April 1, 1964. Certain classes of electrical supplies included in the original electronics package are being shifted to the General and Industrial Centers, with the former assuming the predominant share in phased increments July 1-December 31, 1963. The Industrial Center, which became fully operational in its originally assigned classes on July 1, 1963, will assume a single add-on class (electric wire and cable) by September 1, 1963.

Meanwhile, as an outgrowth of one of the three commodity area studies the Secretary of Defense assigned DSA on its establishment, the agency was assigned management of some 6,000 items in 12 classes of chemical supplies in November 1962. The Petroleum Center assumed management of 10 of these classes (chemicals and solid fuels) and the Medical Center of 2 classes (laboratory apparatus and equipment) on July 1, 1963.

Thus, DSA starts fiscal 1964 with nine supply centers fully operational in all assigned classes of supply except for electrical/electronic supplies. However, in the continuing search for management improvements, the Secretary of Defense decided, following an over-all review, that a consolidation of certain functions of Army and DSA inventory control points handling automotive and construction supplies would produce savings in personnel, overhead, and automatic data-processing facilities. As a result, the Defense Automotive Supply Center in Detroit, Mich., will be phased out by January 1, 1964. The Army's Tank-Automotive Center in that city has been designated DOD Integrated Supply Manager for combat and tactical vehicles of Army design, with its responsibilities broadened to include supply support to the other military Services for all parts peculiar thereto. It will assume management of all combat and tactical vehicle peculiar parts now managed by the Automotive Center. The rest of the items centrally managed by the Automotive Center will be transferred to the Defense Construction Supply Center in Columbus, Ohio. Simultaneously, the Army's Mobility Support Center in Columbus will also be phased out and the Construction Center will assume part of its item management responsibilities. The remainder will be transferred to Army installations elsewhere.

ITEMS MANAGED AND INVENTORIES SUPPLY CENTERS

Commodity center	Items centrally managed (in thousands)			Inventory value (millions of dollars)		
	June 30, 1962 (actual)	June 30, 1963 (actual)	June 30, 1964 (projected)	June 30, 1962 (actual)	June 30, 1963 (actual)	June 30, 1964 (projected)
Automotive.....		103.5			88.0	
Clothing and Textile...	20.0	22.6	22.0	1,145.4	1,037.6	898.1
Construction.....	12.0	121.8	277.0	7.6	109.1	206.5
Electronics.....		388.5	533.0		412.8	479.7
General.....	50.0	44.6	88.0	124.5	146.6	113.1
Industrial.....	116.0	337.6	444.0	132.1	306.7	302.7
Medical.....	9.0	8.9	12.0	221.0	207.3	193.6
Petroleum.....		0.6	2.0		9.3	37.8
Subsistence.....	1.0	0.9	1.0	116.0	94.8	99.4
Total.....	208.0	1,029.0	1,379.0	1,746.6	2,412.2	2,330.9

Figure 1

DSA Distribution System

Another long step toward full realization of the benefits of integrated management has been the fulfillment of DSA's charter responsibility for "a wholesale distribution system for assigned supplies." A DSA distribution system, based upon a high priority study, was approved by the Secretary of Defense in December 1962, after coordination with the military departments.

The new system replaces the variety of distribution systems operated by the departmental single managers and inherited by DSA. It provides for an integrated network of distribution facilities for all DSA commodities to be operated under uniform procedures. Requisitioning and supply control functions are centralized in the DSA supply centers. The depot storage pattern positions stock in selected depots close to concentrations of military posts and ocean transport terminals in the United States.

Seven principal depots stock a wide range of DSA commodities. Four specialized support depots have similar functions but the scope of support for customers and the type of material stored is more limited in range and depth. In addition, selected DSA stocks are being positioned at a number of direct supply support points (DSSPs) within the military Services. The points selected for this purpose are Service facilities at which the volume of demand is sufficiently high and predictable to permit direct shipment of replenishment supplies from manufacturing sources to the user. Eighteen Navy DSSPs are already operating for one commodity and other commodities are being considered for support. The number of activities will vary by commodity and be expanded whenever it is determined that more effective support or reduced costs can be expected.

The transition to complete centralized requisition processing and accounting systems at Defense supply centers was accomplished on July 1, 1963. Relocation of stocks from other military Service installations to the depots in the DSA system and stock attrition at those sites was begun during the last half of fiscal year 1963 and will continue over an approximate 2-year period. Savings of an estimated \$11.5 million in annual operating costs will be realized when the system is fully in effect.

Industrial Plant Equipment

On December 7, 1962, as an outgrowth of the second of DSA's commodity area studies, the Secretary of Defense assigned the agency certain management responsibilities for the multibillion dollar DOD inventory of industrial plant equipment—that is machine tools, metal-working machinery, test equipment, and the like. To carry out these management functions, DSA established the Defense Industrial Plant Equipment Center (DIPEC) at Memphis, Tenn., on April 1, 1963. Permanent staffing began on July 1, 1963, and the center is scheduled to attain full operational status by the end of fiscal year 1964.

DIPEC will furnish common inventory management services to the military departments for the idle portion of the Defense inventory and maintain a master inventory of all such equipment, idle and in use, throughout the Department of Defense. It will operate central storage sites for idle inventory, assure maximum utilization in lieu of new purchases, procure general purpose plant equipment as agreed upon by the military departments, and perform other functions. The military departments will continue to determine their requirements in both type and quantity, manage equipment in use, and buy special and general purpose equipment not approved for central purchase.

The establishment of DIPEC will result in better utilization of existing plant equipment assets, in reduction of the possibility of concurrent buying and selling, in better service to contractors eligible to use this equipment, in more economical movement, repair, and rebuild at central storage sites, and in more efficient determination and subsequent disposal of surplus.

Aeronautical Materiel Study

Aeronautical materiel was the third and largest commodity area designated for study by DSA to determine the optimum method of management. Initially a pilot study was conducted to define more precisely the range of items and areas

to be studied in depth. After a review of this pilot study by the Defense Supply Council in December 1962, the Secretary of Defense directed DSA to study in depth 11 Federal supply classes containing about 150,000 items with an inventory value of about \$5.1 billion, as part of the Aeronautical Materiel Management Improvement Program sponsored by his office. The items under study represent more than 60 percent of the dollar value of materiel directly related to aircraft support.

The study was initiated on January 9, 1963, and the field research phase was completed on August 1. The study team is now analyzing the results of its research and the final report will be forwarded to the Secretary of Defense for review in January 1964.

Organization, Direction, and Control

Some adjustments were made in DSA organization in fiscal year 1963. The Commander of the Defense Traffic Management Service was given additional duty in DSA headquarters as Executive Director for Transportation and the number of major field activities rose from 11 to 14 as a result of expansion of missions. The entire headquarters was assembled in its permanent home at Cameron Station, Alexandria, Va., by early June 1963. The Defense Logistics Services Center completed its move to Battle Creek, Mich., in January 1963.

DIPEC was one of the three additional major field activities. Two others—the Tracy Defense Depot Command and the Mechanicsburg Defense Depot Activity—were established as part of the DSA distribution system. Other depots in the system are located at existing centers or remain under Army or Navy control.

Below the level of major field activities, 19 industrial mobilization and procurement support offices were consolidated into 8 procurement support offices. The consolidation of the Army and Marine Corps clothing factories in Philadelphia was completed with a savings of \$900,000 and 218 personnel. Consolidation and consequent reduction of 34 surplus sales offices to 18 is under way with a prospective annual monetary savings of \$1.2 million, and personnel savings in excess of 200.

A new regulation has been promulgated providing for a standard organizational structure at each center for the performance of common functions to replace variant structures inherited from the military departments. This step is expected to produce more clearly defined lines of responsibility, to facilitate comparative reporting and cost analysis, and to provide a base for expansion or contraction without major reorganization.

For control of DSA's extensive and geographically dispersed operations, the Director's basic management concept continues to be that of centralized policy control and decentralized operations. Goals and objectives are established within a program system with a 3-year forward projection. To measure progress against goals, the Director holds staff reviews and analyses quarterly and command reviews semiannually. Other selective devices provide monthly data on progress in key areas.

To reduce the formal reporting load while at the same time providing all DSA management levels with the information they need for timely decisions, a complete management information system, incorporating some 3,566 separate data elements, has been designed and is being placed in effect. The system will be progressively automated.

Budget and Funding

Generally, DSA uses appropriated Operations and Maintenance (O&M) funds to pay operating costs, except military personnel costs, and a stock fund to

finance its inventories. It funds certain surplus disposal activities out of the proceeds of sales.

DSA's O&M appropriation for fiscal year 1963 amounted to \$175 million. Various adjustments with the military departments and in other areas resulted in a total net O&M direct obligational authority of \$178.4 million. Additional funds were received from the military departments as reimbursement; total DSA operating costs in fiscal year 1963 amounted to \$195.2 million.

DSA's O&M budget for fiscal year 1964 provides for \$255.6 million in direct obligational authority. The increase of \$77.2 million over the previous year derives mainly from transfers of appropriations from the military Services. These transferred funds are required to finance new management responsibilities assumed over the course of the past year, including particularly those for the new distribution system. Since in each case larger deductions have been made from the budgets of the military departments as a result of the transfer of these functions, the end result will be a greater net economy in operating expenses. The fiscal year 1964 budget does not provide for the operation of DIPEC or for the assumption of any additional missions that the Secretary of Defense may assign. These will be financed, as the DSA distribution system was initially, by transfer of funds included in military department budgets for functions transferred.

DSA used Military Construction funds totaling \$8.0 million during fiscal year 1963 to provide space for new administrative functions, and a total of \$620,000 under the appropriation title "Procurement, Defense Agencies" to purchase necessary administrative vehicles, materials-handling equipment, and special production facilities. Military Construction funds requested for fiscal year 1964 total \$1,761,000 and Procurement funds \$627,000.

The following data in figure 2 reflect, by center, operations of the Defense Stock Fund in fiscal year 1963:

STOCK FUND DATA

(In Millions of Dollars)

Center	Obligations	Sales net	Inventory capitalization	Inventory drawdown
Automotive.....	7.6	9.5	103.0	1.9
Clothing and Textile.....	217.7	359.4	-----	141.7
Construction.....	45.7	30.5	114.0	(+15.2)
Electronics.....	40.0	57.0	467.0	17.0
General.....	105.5	115.7	10.0	10.2
Industrial.....	85.1	107.9	202.0	22.8
Medical.....	69.6	111.8	-----	42.1
Petroleum.....	15.5	17.2	13.0	1.8
Subsistence.....	790.1	829.4	-----	39.3
Total.....	1,376.8	1,638.4	909.0	261.6

Figure 2

This inventory drawdown of \$261.6 million exceeds the goal of \$229 million established when DSA was founded. Projections for fiscal year 1964 provide for \$1,863 million in sales and \$1,740 million in obligations, and an inventory drawdown of \$123 million. These inventory drawdowns represent, in each

case, sales without replacement of long supplies and excess, and do not involve stocks needed to satisfy normal peacetime needs of the military Services or mobilization reserves.

Personnel

The increase in DSA personnel strength from 16,501 to 25,970 during the course of the past fiscal year has been directly related to the absorption of additional functions from the military departments. It has involved a reduction of approximately 3,700 in the total DOD personnel required to perform the functions now assigned to DSA. Summary statistics on the growth and distribution of DSA personnel strength are shown in figure 3.

STATUS OF DSA PERSONNEL

Organization	June 30, 1962			June 30, 1963		
	Total	Civilian	Military	Total	Civilian	Military
DASC.....				692	670	22
DCTSC.....	4, 609	4, 496	113	4, 020	3, 934	86
DCSC.....	1, 860	1, 830	30	3, 874	3, 790	84
DESC.....	433	415	18	4, 292	4, 176	116
DGSC.....	2, 877	2, 753	124	2, 691	2, 585	106
DISC.....	1, 533	1, 491	42	2, 448	2, 403	45
DLSC.....	1, 228	1, 210	18	1, 203	1, 190	13
DMSC.....	487	451	36	608	572	36
DPSC.....	188	168	20	301	281	20
DSSC.....	1, 665	1, 535	130	1, 646	1, 507	139
DTMS.....	1, 006	926	80	1, 026	935	91
Procurement Support Offices.....				549	540	9
Mechanicsburg De- fense Depot Activ- ity.....				771	764	7
Tracy Defense Depot..				941	926	15
Administrative Sup- port Center.....	80	59	21	188	138	50
Headquarters, DSA....	535	435	100	720	621	99
Total.....	16, 501	15, 769	732	25, 970	25, 032	938

Figure 3

Further transfers of spaces from the military departments during fiscal year 1964, estimated at around 5,000, will be mainly in connection with full implementation of the distribution system and the gradual assumption of management functions by DIPEC.

The staffing of DSA has involved innumerable difficult personnel adjustments. DSA has made every effort to ease the economic and psychological impact on the individuals involved, and to provide for personnel transferred or assigned to DSA ample opportunity for growth and development. A comprehensive civilian career management program has been established.

In the military personnel area, one of DSA's most important goals is a genuinely jointly staffed organization. The organization DSA initially inherited was

staffed with 60 percent Army personnel, 19 percent Navy, 18 percent Air Force, and 3 percent Marine Corps. The ultimate plan provides for 39 percent Army, 27 percent Navy, 29 percent Air Force, and 5 percent Marine Corps. The present rate of progress indicates this goal will be achieved by June 1964.

To provide for emergency or war, a total of 977 mobilization designation positions, authorized by the military Services for DSA activities, has been incorporated in DSA Joint Mobilization Tables of Distribution. Assignments of qualified reservists to these positions are being effected.

The Procurement Area

Procurement awards by DSA centers during the year totaled \$2.67 billion. The planned procurement rate for fiscal year 1964 is \$3.0 billion. Three commodities—food, clothing, and petroleum—comprise more than two-thirds of the total procurement program, with the balance divided among the remaining six commodities purchased by DSA.

DSA seeks to reduce administrative procurement leadtime to a minimum through standardization and simplification of procedures and, through increased competition, reduce procurement cost of those items for which it has procurement responsibility.

In the past fiscal year, 91.3 percent of the dollar value of DSA procurement was on a competitive basis. Awards to small business firms totaled \$943 million, equivalent to 40.5 percent of dollar awards to all U.S. firms and exceeding the established goal. Of domestic awards over \$10,000, contracts totaling \$415.1 million were let in labor surplus areas.

DSA will continue to expand its efforts toward improvement in these programs during fiscal year 1964 by further broadening of the base of competition, emphasizing the opportunities the DSA market offers to industry, and increasing use of formal advertising.

In an effort to cut the time and costs of procurement administration, DSA is testing the use of computers in the complete cycle of the procurement process. The high volume of small purchases has been the subject of intensive study with a view to reduction and more expeditious processing.

To improve the U.S. balance of payments position and reduce the outflow of gold, 328 out of 458 proposed purchases valued at \$6.2 million that normally would have been awarded for items of foreign origin were directed to be awarded for items of domestic origin at a premium of \$1.3 million or 21 percent over foreign prices.

In the field of industrial mobilization planning, programs were established at six centers in fiscal year 1963 and these will be extended to the other centers during fiscal year 1964. A field staff has been set up to accomplish detailed readiness planning for about 500 key items with 5,500 potential producers with plans for expansion during the coming year.

DSA is continually implementing and refining an integrated quality and reliability program. This program, in addition to establishing a manageable system for assuring the quality and reliability of procured materiel, stresses the preventive role of the quality discipline through liaison with developing, retailing, and using agencies.

Materiel Management Systems

One of DSA's primary goals is the establishment of uniform systems and procedures for all of its centers to follow in the many facets of materiel management. Design of a complete materiel management system must, however, proceed concurrently with operations under variant systems inherited from the military departments. Improvements in these existing systems cannot await the ultimate

complete design. The approach has, therefore, been to proceed by individual segments while making interim improvements in other areas. For instance, the Distribution System and the Management Information System are segments for which design has been completed and implementation begun. During fiscal year 1963, some progress was also made in the areas of requirements, provisioning, and technical data.

All DSA commodity centers are now computing replenishment requirements, thereby eliminating the necessity for dual forecasting of these requirements by the military Services. Improvements have been made in computing procedures and techniques. Meanwhile, after a year of field research, a DSA study team has defined a base for development of a uniform system for application to all DSA commodity centers. A uniform system throughout DSA will improve requirements management on a broader basis. The study is currently being staffed and implementation is expected to commence during the next fiscal year.

A thorough study has also been made in the closely related functional area of provisioning—that is, the furnishing of spare parts, repair parts, special tools, and test and support equipment required for end items. The major result of the provisioning study has been a draft regulation, to be issued during the coming year, defining the relationships between DSA and the military Services in the provisioning process and prescribing standard procedures and formats for provisioning data.

In provisioning, as well as in procurement, cataloging, standardization, inter-Service supply support, maintenance, and inventory control, technical data provide the foundation essential to keeping pace with rapid technological progress. Technical data consist of engineering drawings, data sheets, test reports, technical manuals, specifications, standards, purchase descriptions, and similar documentation. DSA must assure that technical data on the items it manages are readily available in usable form if it is to function properly.

The Technical Data Study Team is developing a system to satisfy DSA requirements in this area. It will entail the use of sophisticated automatic data-processing equipment for the storage, retrieval, and distribution of data. The study phase of the project will be completed in the first half of calendar year of 1965 with the system to be placed in effect in calendar years 1965 and 1966. Coordination with the military departments is being effected to take advantage of data already available there, but it will also entail acquisition of data by DSA from other sources.

The advantages of uniform systems for management of common supplies and related services can only be realized through efficient use of the most advanced automatic data-processing equipment. During the past fiscal year, the primary effort was directed toward augmenting equipment inherited from departmental single managers as required to realign workload, centralize requisition processing, and improve reaction time to meet the requirements of the Military Standard Requisitioning and Issue Procedure (MILSTRIP). In the next 2 fiscal years, the major effort will shift toward development of greater uniformity of data systems and equipment among the centers in phase with the development of other uniform systems for handling DSA functions.

An important development of the year was the establishment of an active program, in accord with recent General Accounting Office recommendations, to reduce the cost of data processing through the purchase of selected equipment in lieu of rental.

Defense-Wide Services

DSA administers Defense-wide programs for cataloging, standardization, materiel utilization, surplus disposal, and coordinated procurement. It provides traffic management in the continental United States. It monitors MILSTRIP

and related standard Defense procedures. In several of these areas, the agency has special responsibilities for the commodities it manages as well as general responsibility for Defense-wide administration. In cooperation with the military Services, DSA has made significant advances in improving these programs. More far-reaching measures, involving major new concepts, are under study or development.

A primary problem in the Defense supply system in recent years has been the rapid growth in the number of items in the Defense Catalog. In exercising its standardization and cataloging responsibilities, DSA is attacking this problem through two approaches, first by reduction of items in the existing catalog and second, by controlling the entry of new items.

In item reduction, DSA continued to place primary emphasis on items assigned to it for management. Supply centers reached agreement with the military Services on the elimination of 28,000 DSA-assigned items during the year, plus 9,000 related Service-managed items. This exceeded the established goal. A goal of eliminating at least twice this number of unnecessary items has been set for fiscal year 1964.

Steady progress has also been made toward improving Defense-wide standardization. Both the Logistics Management Institute and DSA have undertaken analyses of the program, and major new concepts are evolving out of these studies. Concurrently, actions have been taken to improve the program within present concepts. Among these are initiation of a program to accomplish effective standardization of guided missile components, identification and acceleration of other significant standardization projects with Defense-wide impact, development of new procedures to expedite the completion and revision of specifications, and increased use of industry standards through negotiation of agreements with industrial associations and similar organizations.

Development of an effective "front screen" to prevent the entry of unnecessary new items is a primary DSA goal. Full development of the "front screen" depends on accumulation of adequate technical data on existing items to provide a basis for comparing them with proposed new ones. The primary initial effort is being concentrated in this area. However, the Defense Logistics Services Center (DLSC) now provides mechanized screening of manufacturers' part numbers of new items on request to determine whether they match items already assigned Federal stock numbers. With the accumulation of technical data, new techniques have been or will be introduced at the supply centers to supplement normal catalog screening by screening against item characteristics.

Whether as a result of these efforts or not, the DOD section of the Federal Catalog in fiscal year 1963 for the first time showed a net reduction—a decline from 3,966,000 to 3,942,000 items. (Net growth in the entire Federal Catalog from 4,160,000 to 4,222,000 is explained by an increase in the number of civilian agency items cataloged.)

At the same time, DSA is seeking to improve catalog service to customers. A standard format for catalogs prepared by DSA centers has been developed. In response to General Accounting Office recommendations, a DSA task force is studying how best to clarify the scope of items cataloged, introduce interchangeability and substitutability data into the central file, and minimize the assignment of multiple Federal stock numbers to the same item. These efforts, of course, closely mesh with those involved in item reduction and the establishment of an effective "front screen."

The Materiel Utilization Program is also being accelerated and strengthened along several lines. Procedures have been revised and codified and a new reporting system is being instituted. As a result of the success of a service test of automated matching of Service requirements against a central inventory of long supply and excess items at the Defense Logistics Service Center (Project

PLUS), this centralized matching system will be expanded to all items on October 1, 1963. Similarly, Project SHAKEDOWN, initiated as a test of joint Service review of item identification data for cross-servicing in Federal Supply Class 2915 (Engine Fuel System Components, Aircraft), was extended to eight additional classes of aeronautical material. Technical personnel have been employed to search out all potential uses of parts of weapons systems being phased out, such as NIKE-AJAX. As a result, use of these parts has substantially increased. DSA is also undertaking to optimize interservicing of supplies and services at the retail level between installations of the Army, Navy, and Air Force.

The value of long supplies and excess utilized through the interservicing program in fiscal year 1963 totaled \$531 million, an increase of \$56 million over fiscal year 1962.

Increased utilization of materiel within Department of Defense or by other Government agencies is more economical than disposal as surplus where the return is at best likely to be only a few cents on the dollar. Increased utilization has resulted in a smaller amount of property, in less desirable condition, available for sale. Thus in fiscal year 1963 the acquisition value of materiel sold as surplus usable property amounted to \$892 million as compared to \$1,236.2 million in fiscal year 1962. Proceeds of \$59.4 million represented a return of 6.7 percent of acquisition value as compared to a 7 percent return the previous year.

Surplus disposal by DOD remains, nevertheless, a large-scale enterprise. A study of the entire program within the United States was conducted by DSA during the year at the direction of the Secretary of Defense. Some 33 recommendations emerged from the study, many of which are now being carried out with a view to making substantial improvements in marketing and handling to increase returns while cutting the costs of disposition.

In administering the Coordinated Procurement Program, DSA's main effort has been toward developing improved policies and procedures and preparing a list of existing coordinated procurement assignments. This will be followed by a review and up-dating of existing assignments in conjunction with the military Services and a study of additional areas for possible inclusion in the program.

In exercising DSA's traffic management functions during fiscal year 1963, the Defense Traffic Management Service (DTMS) quoted 967,000 freight rates and 28,400 passenger rates on behalf of various Defense elements, issued 146,000 freight route orders, and arranged 14,661 group movements. Some 23 million short tons of freight and 4.3 million passengers were moved under DTMS cognizance at a cost of \$463.5 million and \$126 million, respectively. DTMS estimated economies under the DOD Cost Reduction Program, accruing to the military departments, of \$16.4 million as a result of increased use of less than first class air accommodations, through-bill movement of household goods, and use of Great Lakes ports.

Moreover, DTMS' ability to respond to an emergency was more than amply demonstrated during the Cuban crisis, when arrangements for large-scale movements of men and materiel to the southeastern United States had to be made on short notice. Close teamwork between DTMS, the Interstate Commerce Commission, and rail and motor officials vastly expedited these movements and assured that the men and supplies would be in place to execute whatever action the President decided upon.

The end of fiscal year 1963 marked the first anniversary of operations under MILSTRIP, the new standard requisitioning and issue procedures now used by all elements of the Department of Defense. MILSTRIP, essentially a means of automating these processes, has proved to be an efficient and successful

peacetime system, and during the Cuban crisis it was especially effective. In keeping with its assigned responsibilities, DSA has maintained monitorship of MILSTRIP operations and procedures, including coordination of changes and improvements recommended by users.

MILSTRIP techniques have established a precedent with unlimited potential for application in other areas. A Military Standard Transportation and Movement Procedures (MILSTAMP) will be placed in effect worldwide October 1, 1963, and DSA has been assigned a role of monitor similar to that it performs for MILSTRIP. DSA is also furnishing the chairman for a task force charged with developing a similar system for standardization of inventory management data called MILSTRAP (Military Standard Reporting and Accounting Procedure).

Civil Defense Supplies

DSA continued support of the Office of Civil Defense Fallout Shelter Program through procurement, distribution, storage, and supply of specially designed shelter items of food, water containers, sanitation kits, and medical kits. Procurement during fiscal year 1963 approximated \$100 million representing supplies for an estimated 50 million shelter spaces. The materiel management aspects of this program, with stocks supplied to local Civil Defense customers through a network of 86 wholesale storage locations, are effected by the Defense General Supply Center, which also handles stock management for Civil Defense stockpile materiel.

Relations With GSA

DSA continues its close relationship with the General Services Administration in effecting cooperative arrangements for cataloging, disposal, standardization, procurement, and supply of common items. The area of most active interest during the past year has been that of supply management. The established policy of the Secretary of Defense in this area is that GSA should be used as a source of supply for the DOD whenever it is more economical and there is no loss in capability to support military requirements. During the fiscal year, total GSA sales to DOD components were valued at \$778 million, representing an increase over fiscal year 1962 of \$108 million.

Of major import during the latter part of the year were discussions participated in by the Bureau of the Budget, the Office of the Secretary of Defense, DSA, and GSA which resulted in agreement on assignment of all hand tool and paint items to GSA, except those retained for management by the DOD as weapons related. The ensuing transfer, scheduled for fiscal year 1964, will increase the number of items accepted by GSA by approximately 20,000. In accordance with a recommendation of the Joint Economic Committee of the Congress, a moratorium has been declared on any further substantial transfers pending the results of a study, to be conducted under the auspices of the Bureau of the Budget, aimed at the development of a "genuine Federal supply system."

Supply Effectiveness

While carrying out a reorganization of major proportions, DSA has successfully maintained a record of supply effectiveness at least equal to that under arrangements existing previous to its establishment, and in some cases has improved on it. Exact statistical comparison is difficult, both because systems employed by the several departments to measure supply effectiveness differed and because the JCS-approved priorities system under MILSTRIP significantly shortens the time period allowed for filling requisitions. DSA has established its own standard system to measure supply effectiveness in two ways. One

measure—stock availability—reflects the stock position of centrally stocked items at the time a requisition is received and edited. The other—on-time shipments—reflects the proportion of centrally stocked items which are offered a carrier within the time period allowed under MILSTRIP procedures.

Measured in these terms, over-all stock availability for DSA in fiscal year 1963 was 89.8 percent and on-time fill 80.3 percent. The degree of effectiveness varied between centers from month to month. Variations were caused by implementation of MILSTRIP, establishment of new supply centers, a capitalization of large blocks of items with insufficient pipelines, and differences in the reporting systems and data utilized in computing supply performance.

The real test of any military supply system is its performance in an emergency. During the Cuban crisis, when high priority requisitions increased ninefold and the total volume of requisitions doubled over a 5-week emergency period, DSA proved its ability to function effectively in such a situation. The short duration of the crisis and the absence of significant resupply requirements precluded a full test of mobilization readiness, but DSA's immediate responsiveness, procedures, and relationships with the Services and the Joint Chiefs of Staff were realistically and fully tested. Close liaison with Service and joint planning staffs made it possible for DSA to promptly alert the supply centers, to activate the DSA Emergency Supply Operations Center, and to dispatch supply expeditors to major user locations. The procedures for referral of priority allocation problems to the Joint Chiefs of Staff were effective and responsive. The performance of all DSA centers resulted in numerous expressions of appreciation by Service commanders.

A Logistics Readiness Center, established during the Cuban crisis, has been continued as a permanent part of the Headquarters organization to provide an over-all focal point within DSA for efficient, economical, and responsive support of the military Services and unified commands' emergency and contingency operations.

Cost Reduction Program

While maintaining or improving supply effectiveness, DSA is also proving that it can do so at less cost to the taxpayer. The Director has assigned the task of meeting DSA's goals in the DOD Cost Reduction Program a priority second only to that of efficient service to the armed forces. DSA's contributions to cost reduction are both direct and indirect. Direct participation is limited to those goals which are directly associated with DSA's own operational functions and inventories. Indirect contributions result from DSA's efforts in administering Defense-wide programs and performing Defense-wide services—for instance, from materiel interservicing and traffic management—and are reflected in economies achieved and reported by the military departments.

During fiscal year 1963, DSA accomplished direct cost reductions totaling \$61.8 million, exceeding its established goal of \$51 million by 21 percent. The largest single item, reduction in operating costs, accounted for \$31.3 million, this being, in large part, the difference between military Service estimates of the cost of performing DSA functions and the amount actually budgeted and spent by DSA for these purposes. Refinement of secondary item requirements and savings achieved in initial spare provisioning accounted for \$24 million. Value engineering accounted for an additional \$2.1 million, item reduction decisions on DSA-assigned materiel, \$2.8 million, increased competitive procurement, \$1.0 million, and shift from cost-plus-fixed-fee to firm-price or incentive-type contracts, \$0.6 million.

In addition to these recurrent annual savings, the inventory drawdown of \$261.6 million produced a one-time savings, some \$142.7 million of which has

been transferred to Service accounts to meet military personnel costs; \$40 million has been returned to the Navy Stock Fund.

Cost reduction goals for fiscal years 1964 and 1965 have been set at \$86.8 million and \$123 million, respectively. These expanded goals reflect anticipated increases in operating expense savings as the DSA Distribution System becomes fully effective, and such other management improvements as an enhanced effort in reducing secondary item requirements and promotion of value engineering and competitive procurement. New goals have also been added in the areas of packaging and preserving and controlling the entry of new items.

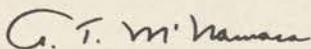
Conclusion

DSA has achieved substantial sound progress in the integrated management of assigned supplies and services in fiscal year 1963. The initial obstacles that confront any new organization have now been largely overcome. The agency is moving forward to establish those uniform, efficient systems for handling its responsibilities, the lack of which was a primary reason for its establishment.

The future holds many challenges. Some parts of the DSA structure are yet to be completed. Difficult adjustments, like those involved in the rearrangements for handling automotive and construction supplies, hand tools and paint, will have to be made. Supply effectiveness rates in some areas must be improved. Better ways must be found to accelerate standardization, and control the entry of new items into the supply system. New missions may be assigned. DSA moves forward to meet its future challenges, confident that it is building on sound foundations established during the initial phase of its operations, and that its objectives will be met:

—First, and foremost, to provide effective logistic support to the operating forces of all the military Services in war, peace, and emergency.

—Second, to provide that support at the lowest possible cost to the taxpayer.



A. T. McNAMARA,
*Lieutenant General, USA,
Director, Defense Supply Agency.*

The first of these is the fact that the United States is a young nation, and its history is therefore a history of growth and development. The second is the fact that the United States is a large nation, and its history is therefore a history of expansion and conquest. The third is the fact that the United States is a diverse nation, and its history is therefore a history of conflict and compromise.

The fourth is the fact that the United States is a nation of immigrants, and its history is therefore a history of assimilation and integration. The fifth is the fact that the United States is a nation of pioneers, and its history is therefore a history of exploration and discovery. The sixth is the fact that the United States is a nation of entrepreneurs, and its history is therefore a history of innovation and invention.

The seventh is the fact that the United States is a nation of reformers, and its history is therefore a history of social and political change. The eighth is the fact that the United States is a nation of idealists, and its history is therefore a history of high aspirations and noble goals. The ninth is the fact that the United States is a nation of pragmatists, and its history is therefore a history of practical solutions and effective action.

The tenth is the fact that the United States is a nation of optimists, and its history is therefore a history of hope and faith. The eleventh is the fact that the United States is a nation of realists, and its history is therefore a history of hard facts and sobering realities. The twelfth is the fact that the United States is a nation of dreamers, and its history is therefore a history of visions and dreams.

The thirteenth is the fact that the United States is a nation of doers, and its history is therefore a history of achievement and accomplishment.

Annex C
ANNUAL REPORT
of the
OFFICE OF CIVIL DEFENSE
July 1, 1962 to June 30, 1963
Introductory Highlights

Civil defense progress at the end of fiscal year 1963 was clearly evident on two distinct fronts:

First, noteworthy success in surveying, marking, and stocking of public fallout shelters resulted in changing the character and quality of civil defense in the United States by (1) reorienting civil defense plans and programs around the lifesaving potential offered by a nationwide fallout shelter system and (2) identifying the least expensive methods of expanding this system.

Second, the Armed Services Committee of the House of Representatives conducted an exhaustive study of certain facets of civil defense, particularly those concerning fallout shelters. This completely objective study was extraordinary in that it was based on the extensive testimony of 108 witnesses, most of whom possessed a special competence in some field related to fallout shelters. All arguments against the program had to be answered in unequivocal fashion, and the House was provided the information needed for it to develop and pass legislation designed eventually to extend the lifesaving potential of the nationwide fallout shelter system to every American. This legislation, H.R. 8200, was passed by the House, and referred to the Armed Services Committee of the Senate on September 18, 1963.

A sound and substantial program has been formulated since major civil defense responsibilities were assigned to the Department of Defense 2 years ago. Basic elements of this program are operational and adequately based to support the action needed to make fallout protection available to everyone. Some major facts on development status of the nationwide fallout shelter system at the end of fiscal year 1963 were:

1. Fallout shelter space for approximately 104 million persons had been located in existing structures. Of this amount, it is expected that shelter for 70 million persons can be licensed, marked, and stocked.
2. Owners of more than 50,000 facilities had signed shelter license agreements for use of space to protect more than 47 million persons.
3. Shelter space to protect nearly 43 million persons had been marked in approximately 54,000 facilities.
4. Cumulative procurement had been initiated for shelter supplies sufficient to serve 50 million persons.
5. Shelters in approximately 21,000 facilities had been stocked with supplies to serve nearly 10 million persons.

6. About 5,000 county and municipal governments were active in local management and installation of shelter supplies.

Other major developments during the year included:

1. Establishment and implementation of civil defense functions as a mission of the armed forces to be performed prior to nuclear attack and during emergency conditions existing after attack.

2. Further extension in use of Department of Defense resources for civil defense to include training of radiological monitors by the U.S. Continental Army Command and use of Standby Reserve officers in State and local civil defense work.

3. Establishment of Regional Civil Defense Coordinating Boards to coordinate the civil defense planning of military departments and Federal agencies in the field with State and local governments.

4. Use of approximately 15,000 Field Extension Service personnel of the Department of Agriculture in the rural civil defense program.

5. Increased emphasis on shelter use training and radiological defense training, including decontamination, by development of additional courses offered civil defense personnel at Office of Civil Defense schools.

6. Expansion of training capability by initiation of a program for extension divisions at 51 State institutions of higher learning to train instructors in shelter management and radiological monitoring and to conduct civil defense conferences with State and local officials.

7. Training of approximately 788,000 persons in medical self-help techniques, more than 278,000 in civil defense adult education, and 4,255 key civil defense personnel and instructors at Office of Civil Defense (OCD) schools.

8. Strengthening of the data base for damage assessment in major resource areas; e.g. food, fuel and power, construction equipment, water, health, and manpower.

9. Completion of plans for the Emergency Broadcast System (EBS), established on August 5, 1963, to replace CONELRAD (Control of Electromagnetic Radiations). The EBS will make approximately 1,700 radio stations available to the President or his spokesman and to State and local governments for the purpose of keeping the citizenry informed during civil defense emergencies.

10. Work in progress on the National Emergency Alarm Repeater (NEAR) system, designed to give immediate indoor warning of impending attack. This included an analysis of 170 electric utility systems to determine size and location of NEAR signal generators and the testing of NEAR prototype generating equipment in 7 electric utility systems.

11. Activation of the Protective Structures Development Center at Fort Belvoir, Va., in December 1962, to provide facilities supporting the development of improved design and construction of protective structures and related equipment.

These developments are summarized in the body of this report. A more detailed report is published separately by OCD.

Nationwide Fallout Shelter System

Shelter Space

The principal part of the civil defense program is designed to locate or develop fallout shelter space and mark and stock it for use by the entire population. During fiscal year 1963, shelter requirements were reassessed to cover the 5-year period ending with fiscal year 1968, when space for an estimated 240 million persons will be needed. Progress toward obtaining the required shelter space and plans to meet the total need included:

1. *National Shelter Program*—This program, in operation since fiscal year 1962, has located shelter for approximately 104 million persons. Of this

amount, it is expected that space for approximately 70 million persons can be made available. Contingent upon future appropriations, space for an estimated additional 20 million persons is anticipated from this source during the next 5 years as a result of new construction and modification of existing buildings.

Immediate objectives of the National Shelter Program are to: (1) Locate suitable fallout shelters in existing facilities, (2) mark them with distinctive signs, and (3) stock them with food and water, medical and sanitation kits, and radiation measuring instruments. Long-range objectives are to keep the program current by (1) updating and maintaining the validity of shelter data and (2) locating additional shelters in communities having shelter deficiencies.

Upon initiation of this program, it was determined that public fallout shelters to be marked and stocked must (1) contain space for at least 50 persons, allowing 10 square feet per person in adequately ventilated shelters and 500 cubic feet in unventilated space, (2) contain 1 cubic foot of secure storage space per person, and (3) have a protection factor of at least 100. These requirements remained the same except that in October 1962, as the result of continued technical studies, the protection factor requirement was changed to 40; i.e. radiation inside the shelter would be reduced to one-fortieth or less of that existing outside. This broadens the source for selecting available shelters and permits maximum use of available shelter space in existing buildings.

At the end of fiscal year 1963, owners of more than 50,000 facilities had signed fallout shelter license agreements covering sufficient space to protect more than 47 million persons, and facilities having a capacity to shelter nearly 43 million persons had been marked.

Large-scale shelter stocking operations began in December 1962 when supplies became sufficiently available. Although some stocking was completed earlier, most shelter provisioning activities prior to that date were primarily concerned with establishing procurement, transportation, warehousing, and transfer of title of supplies to local governments.

As local governments gained experience and public cooperation, the pace of shelter stocking was accelerated. Various cities conducted special exercises that resulted in stocking shelter space for as many as 100,000 persons in 1 day. At the end of fiscal year 1963, shelter space for nearly 10 million persons had been stocked.

The average Federal cost of shelter stocking during fiscal year 1963 was \$2.42 per space, and cumulative procurement initiated was sufficient to accommodate 50 million persons. Future stocking operations depend upon the amount of shelter space located or developed and the availability of funds to stock it. In fiscal year 1964, contingent upon appropriation of requested funds, OCD plans to increase the cumulative procurement of shelter supplies sufficiently to serve 70 million persons.

2. Federal Buildings Program—Contingent upon future appropriations, incorporation of fallout shelters into Federal buildings is expected to provide shelter space for about 5 million persons. The first and only significant fund for this purpose was \$17.5 million contained in the DOD Appropriation Act of 1962. Shelter for more than 500,000 persons will be obtained when agencies to which these funds have been allotted complete their shelter projects.

3. Proposed Shelter Development Program—This is a revised version of the Shelter Incentives Program proposed in fiscal year 1962. Contingent upon future legislation and appropriations, the proposed Shelter Development Program would produce shelter space in nonprofit institutions for an estimated 90 million persons over a 5-year period.

In January 1963, the Administration proposed legislation to the Congress (an amendment to the Federal Civil Defense Act of 1950) which would enable the

Federal Government to make payment to State and local governments and to any nonprofit institution constructing or modifying approved public shelter space which meets shelter standards and criteria prescribed under the provisions of this act.

This legislation would encourage development of fallout shelter space in nonprofit schools, hospitals, and welfare institutions through payment for a portion (or all) of the estimated cost of providing shelter space. The nonprofit status of an institution would be determined by standards used under the Internal Revenue Code. Payment would not exceed \$2.50 per square foot of approved fallout shelter space.

4. *Private shelters*—Home, community, and industrial shelter space for 55 million persons is expected to be generated by the impact of other elements of the shelter program and by massive Federal technical assistance. OCD is supporting this effort with shelter research and design development, low-cost home shelter development, educational programs by the Field Extension Service of the Department of Agriculture, and other programs and activities discussed elsewhere in this report.

Shelter Summary—Projections for obtaining shelter for 240 million persons are:

<i>Source</i>	<i>Millions of spaces</i>
National Shelter Program-----	90
Federal Buildings Program-----	5
Proposed Shelter Development Program-----	90
Private initiative (industry, home owners, and others)-----	55
Total-----	240

Shelter Support Programs and Activities

The nationwide fallout shelter system was supported by work in the field of protective structures and professional development of architects and engineers. These activities included:

1. *Construction of protected emergency operating centers*—The center for OCD Region 5 was nearly complete at the end of fiscal year 1963, and site surveys were being made for such a center in OCD Region 1. Construction of 11 centers for State and local governments was completed with help of Federal matching funds, making a total of 39; 66 were under construction, 88 were in the planning stage, and 81 buildings were modified to provide minimum fallout protection.

2. *Prototype shelter construction*—Most of the 652 active projects had been completed and, in fiscal year 1963, were being used for public demonstration to stimulate shelter construction.

3. *Family shelter design, development, and evaluation*—More than 100 proprietary designs were evaluated; 67 of them were assigned serial numbers, indicating that they met minimum OCD shelter requirements. OCD produced several revised and new designs and worked with technical authorities to develop a special building code for shelter construction.

4. *Activation of Protective Structures Development Center*—Located at Fort Belvoir, Va., this center provided facilities supporting development of improved design and construction of protective structures and related equipment.

5. *Protection of radio stations*—Federal funds were provided to selected radio stations that agreed to maintain equipment and build fallout shelters enabling them to broadcast information to the public under fallout conditions. At the end of fiscal year 1963, 108 such agreements were in effect.

6. *Engineering case studies*—Pending receipt of final reports on 158 case studies of several types of structures offering major sources of future fallout

shelters, preliminary information obtained proved valuable in planning operations for the proposed Shelter Development Program.

7. *Professional advisory services*—These services were provided by direct consultation with architects, engineers, and other personnel engaged in protective design, construction, and vulnerability reduction, and by issuance of technical publications. At the end of fiscal year 1963, 24 of these publications had been issued.

8. *Professional development of architects and engineers*—The 2-week course in fallout shelter analysis previously developed to qualify architects and engineers for conducting the shelter survey of the National Shelter Program was taught at the U.S. Army Engineer School, the U.S. Navy School for Civil Engineer Corps Officers, and at leading universities. It was revised to emphasize shelter planning and designing and adapted for teaching on a semester basis. Renewed demands for the course, stimulated by the Cuban crisis in October 1962, resulted in its being taught by traveling teams in various cities. Faculty members from 15 institutions of higher learning taught the course. About 1,300 architects and engineers completed the course in fiscal year 1963, making a total of 3,879 qualified graduates.

Other means used for professional development of architects and engineers included: (1) Summer institutes cosponsored by the American Society of Civil Engineers, The National Society of Professional Engineers, and the American Institute of Architects; (2) design competition among architects and engineers, administered under contract by the American Institute of Architects; (3) 194 shelter construction workshops held in 184 cities and attended by more than 9,000 architects, engineers, and construction personnel; and (4) protective construction courses and research projects conducted at several institutions of higher learning.

Complementary Civil Defense Systems

Complementary civil defense systems are integral elements of civil defense. They are necessary for effective use of shelters and for preattack planning and postattack operations. These systems include civil defense warning, communications, radiological monitoring, and damage assessment.

Civil Defense Warning

To inform people of impending attack and let them know when to take shelter, the Federal Government provides for sending warning to certain points throughout all parts of the United States. From these points, State and local governments are responsible for warning the public.

The National Warning System (NAWAS) serves the continental United States, except Alaska. It connects 8 OCD warning centers, located at major North American Air Defense Command (NORAD) installations, with 500 strategically located warning points. This network is a special voice communications system over which direct warnings can be sent simultaneously within a few seconds to each of the 500 warning points. These warning points are at key Federal locations, State capitals, and in numerous cities from which the warnings can be sent via State and local warning systems to the public. Federal warning systems also serve Alaska and Hawaii, as well as Guam and American Samoa, Puerto Rico, and the Virgin Islands.

During fiscal year 1963, work was continued on the National Emergency Alarm Repeater (NEAR) system designed to give immediate indoor warning of impending attack by transmitting a special power impulse over electric utility lines. This system requires installation of (1) special purpose signal generating equipment in the electric distribution networks and (2) special purpose indoor

receivers. Prototype NEAR receivers and operational control methods of the system have proved to be satisfactory. Work in progress included an analysis of 170 electric utility systems to determine size and location of NEAR signal generators and the testing of NEAR prototype generating equipment in 7 electric utility systems.

Communications

Civil defense communications systems are designed for informing the public and for directing postattack operations during a civil defense emergency. During fiscal year 1963, OCD communications systems were integrated with other communications systems of the Department of Defense. To replace CONELRAD (Control of Electromagnetic Radiations), the Emergency Broadcast System (EBS) was developed by the Federal Communications Commission (FCC) in cooperation with its National Industry Advisory Committee, the Office of Emergency Planning (OEP), and the Department of Defense. The EBS will rely upon the use of approximately 1,700 radio stations to give daytime and nighttime coverage enabling 98 percent of the population to receive radio information. The EBS will be available on a priority basis to the President or his authorized spokesman, and it will serve State and local governments in communicating with their citizenry to keep them informed of civil defense operations.

National Communications System No. 1 (NACOM 1) is specifically designed for speed, flexibility, and continuity of service required in civil defense emergency operations. It consists of a leased teletype network, with alternate telephone capability, connecting OCD national and regional headquarters and all State civil defense offices except that in Hawaii. The function of NACOM 1 is to provide the means of communications necessary for coordinating emergency government operations from Federal to State levels. It is operational full-time daily between the OCD and its regional offices and can be activated between OCD regional and State offices within 1 hour. National Communications System No. 2 (NACOM 2), a high frequency radio network for voice and code transmission by radio teletypewriter methods, is a backup system for NACOM 1. By the end of fiscal year 1963, NACOM 2 was operational at the OCD emergency relocation site, all OCD regional offices, 23 State installations, and Puerto Rico.

Radiological Monitoring and Reporting

The nationwide radiological defense monitoring system is designed for collecting, evaluating, and disseminating radioactive fallout information through a network of 150,000 monitoring stations. At the end of fiscal year 1963, approximately 38,500 stations had been established, equipped, and staffed. Of these stations, 7,515 were at Federal field facilities and the balance were at State and local facilities.

Most of the radiological defense instruments distributed during fiscal year 1963 were contained in about 6,500 monitoring sets granted to Federal, State, and local monitoring stations and in more than 32,000 radiation kits requisitioned for licensed public fallout shelters. In addition, 573,786 dosimeters were granted to States for use by postattack civil defense workers.

Damage Assessment

OCD damage assessment plans and systems in effect and under development are designed to (1) determine the probable effects of enemy attack upon human and material resources and services of the Nation and (2) provide guidance for postattack survival operations.

By analysis of the effects of a range of hypothetical attacks, OCD continued to derive data for preattack planning by industry and by Federal, State, and local agencies and for evaluating civil defense programs and systems.

To provide data for postattack operations and nationwide action most conducive to recovery, OCD plans call for postattack damage assessment at OCD regional headquarters and at State and local levels. OCD provides training and reference data for this purpose and plans to obtain initial postattack damage assessments from centrally located automatic data-processing computers that rapidly produce estimates of casualties, resources, and facility damage. Plans being developed with the U.S. Air Force for aerial reconnaissance of damaged areas should provide more accurate estimates of destruction than initial estimates obtained from automatic data computers. Final postattack damage assessment will be based on data obtained by on-site inspection, and continued use will be made of computers to process this data.

During fiscal year 1963, the data base for damage assessment was being strengthened in major resource areas; e.g. food, water, health, fuel and power, construction equipment, and manpower. As a result of work completed and in progress, OCD will have information suitable for automatic data processing on a variety of resources and services and will be able to produce summaries applicable to cities, counties, standard metropolitan areas, States, OCD regions, and the entire United States. This information will be available for use in any type of emergency.

Other activities included work on postattack operational plans to devise a system of claiming emergency survival supplies at national and regional levels to supply deficiencies that cannot be met at State and local levels.

Federal Assistance Programs and Activities

Several types of Federal assistance are employed to help State and local governments develop effective civil defense capabilities oriented to efficient use of public fallout shelters.

Technical Assistance and Guidance

Major developments for providing policy guidance to State and local governments included: (1) Establishment of regional civil defense coordinating boards to provide for coordinated planning and action in making Federal field resources available to State and local governments, (2) team visits by OCD personnel to help analyze State and local problems of a policy nature, and (3) preparation of the *Federal Civil Defense Guide*, a publication series providing program and policy guidance to civil defense directors and other Federal, State, and local officials.

Program direction and guidance was provided by issuing instructional materials to assure a coordinated approach on civil defense by State and local technical staffs, especially in licensing, marking, and stocking of public fallout shelters. Other advisory and technical assistance was provided by: (1) Prototype shelter utilization planning projects; (2) arrangements for use of military Standby Reserve officers in local civil defense; (3) contractual arrangements for American National Red Cross advisory services; (4) training of law enforcement officers in civil defense by the U.S. Continental Army Command; (5) coordination of military aid in major disasters; and (6) contractual arrangements for use of 15,000 Department of Agriculture Extension Service personnel in rural civil defense.

Training and Education

A total of 4,255 key civil defense personnel were trained in OCD schools. The Civil Defense Adult Education Program, operating in 45 States and the District of Columbia, trained 14,786 teachers, and 263,259 persons graduated from the 12-hour course in civil defense. Approximately 788,000 persons received training in the Medical Self-Help Program designed to train at least one person in every household.

The Civil Defense University Extension Program, initiated during fiscal year 1963, resulted in contracts with 51 institutions of higher learning to conduct (1) 518 civil defense training conferences with State and local officials, (2) 392 courses to train shelter management instructors, and (3) 346 courses to train radiological monitoring instructors. To augment the supply of radiological defense monitors for staffing monitoring stations, contractual arrangements with the U.S. Continental Army Command (USCONARC) provided for the use of USCONARC teams for training State and local monitors.

Increased liaison with major national educational organizations and requests for guidance materials from school officials led to contracts with (1) the National Education Association (NEA) to prepare and publish a 16-page civil defense article in the March 1964 NEA *Journal* and (2) the National Commission of Safety Education, NEA, to revise the publication *Civil Defense Education Through Elementary and Secondary Schools*.

Greater emphasis was placed on (1) establishing training needs, standards, and programs supported by a reporting system for evaluating training effectiveness and (2) developing training material for shelter management and radiological monitoring. Training material was prepared and distributed to State and local organizations for use in civil defense courses supported by Federal matching funds. Contracts with the U.S. Army Pictorial Center provided for production of training films and the assembly of training kits; contracts with five institutions of higher learning provided for development of training material in special subject areas.

Financial Assistance

By authority of the Federal Civil Defense Act of 1950, as amended, Federal matching funds were made available to State and local governments in support of civil defense. Funds obligated during fiscal year 1963 included approximately \$7.7 million for emergency operating centers, \$6.7 million for supplies, equipment, and training, and \$12.9 million for essential personnel and for administrative expenses. State and local employment supported by these funds must operate under a merit system satisfying Federal standards. Course completion certificates issued to students by OCD schools under the program for partial reimbursement of travel and per diem expenses totaled 2,349 during fiscal year 1963.

Surplus Property

By authority of Public Law 655, 84th Congress, Federal surplus property valued at approximately \$22 million was donated to the States for civil defense use during fiscal year 1963. Since the Congress authorized such action in 1957, title to property having an acquisition cost of nearly \$239.7 million has been transferred to the States.

Emergency Supplies and Equipment Inventory

Included in an inventory of emergency supplies and equipment were 45 10-mile units of engineering equipment valued at more than \$10 million. Stored at 19 locations throughout the Nation, this equipment is available for local emergency

use to pump and purify water. The inventory also contained radiological defense equipment, valued at approximately \$24.7 million, which was being packaged into kits for distribution to licensed public shelters and into operational sets for use at radiological monitoring stations. The remaining part of the inventory, valued at about \$1.8 million, contained chemical and biological defense equipment; e.g. protective masks, chemical detection kits, and decontamination sets.

Research

A carefully organized system of research is used to give perspective to the development and stocking of the nationwide shelter system and to complementary systems and activities that are an integral part of civil defense.

In the interest of economy and efficiency, OCD reduced the number of individual contractors performing its research and placed greater emphasis on using those contractors who had demonstrated superior research capability. In addition, OCD used effectively the results of applicable research completed by other Federal agencies. As shown by the following comparative data, an increased percentage of fiscal year 1963 research funds was committed to Federal agencies and educational institutions:

	Percent	
	FY 1962	FY 1963
Department of Defense (DOD).....	18.1	17.9
Federal agencies exclusive of DOD.....	15.8	22.1
Educational institutions.....	5.0	9.6
Private organizations, including industrial laboratories, research institutes and foundations, and quasi-Government agencies.....	61.1	50.4
Total.....	100.0	100.0

Specific research problems or subtasks under contract totaled 293 (208 continued and 85 initiated). Of these, 95 were completed and 198 were in progress at the end of fiscal year 1963. Research funds were committed for major functional categories as follows:

	Amount	Percent
Shelter.....	\$3,891,058	36.1
Support systems.....	2,709,901	25.1
Postattack research.....	1,814,936	16.8
Systems evaluation.....	2,370,116	22.0
Total.....	10,786,011	100.0

Some major research accomplishments included: (1) Development of additional information about radiation shielding and resultant improvement in reliability of protection factors for buildings; (2) development and production testing of the bulgur wheat wafer permitting establishment of procurement specifications; (3) development and testing of a mathematical model for moving people to shelters; (4) completion of preliminary studies of countermeasures to thermal effects of nuclear attack; (5) quantitative evaluation of fallout characteristics associated with thermodynamic properties of soil and fission products; (6) development of more reliable and efficient procedures for radiological reclamation and decontamination; (7) development of methods for making shelter assignments in existing buildings; and (8) improvement of methods to help planners produce and evaluate operational plans and procedures.

Supporting Activities

Supporting activities are elements of the civil defense program designed to (1) disseminate information, (2) gain the support of industry, national organizations, and the public, and (3) provide nationwide and worldwide perspective.

In addition to those discussed in the ensuing paragraphs, supporting activities included: (1) Functions covered by contractual arrangements and a memorandum of understanding with the American National Red Cross; (2) technical liaison with the National Academy of Sciences—National Research Council, appropriate Federal agencies, numerous technical and scientific societies and associations, individuals, and companies, and civil defense staffs of the North Atlantic Treaty Organization; (3) guidance and recommendations of advisory committees; and (4) international activities coordinated with the Department of State.

Public Information

Incident to the Cuban crisis in October 1962, the OCD responded to thousands of queries for civil defense information from newspaper, radio, and television representatives, as well as from the public. Ten million copies of two handbooks were reprinted—*Fallout Protection: What to Know and Do About Nuclear Attack* (H-6) and *Family Shelter Designs* (H-7). Since their original issuance in 1962, 41 million copies of the former and 15 million copies of the latter publication had been distributed by the end of fiscal year 1963.

Civil defense was widely publicized by (1) issuance of Pentagon news releases, information bulletins to State and local civil defense directors, and special articles for magazines, encyclopedias, and trade journals; (2) display of civil defense exhibits to more than 22.5 million persons; (3) extensive showing of motion pictures on shelters and radioactive fallout; (4) use of television spot announcements; (5) contribution of radio time by 2,600 stations; and (6) display of 3,500 large posters by the Outdoor Advertising Association.

Publications issued by OCD included an information packet, *Organized Action for Civil Defense*, distributed to national and local leaders of 13 major national organizations having a total membership of 18.5 million persons. In addition, the Department of Agriculture cooperated with OCD in preparing and distributing a series of publications for rural audiences.

Industrial Support

Encouraged by OCD industrial participation activities in the form of conferences, briefings, publications, and correspondence, many industrial establishments not only supported the National Shelter Program but trained employees in shelter management and marked and stocked shelters at their own expense. Business and industrial organizations also developed a number of widely circulated publications and articles specially adapted to their civil defense needs, and many industrial establishments distributed civil defense information to their employees.

With OCD assistance, trade, professional, and civic organizations, colleges and universities, and governments at all levels sponsored conferences at which approximately 150,000 leaders were briefed on civil defense during fiscal year 1963. OCD work with Federal agencies having emergency preparedness functions resulted in distribution of industrial civil defense information to thousands of persons trained by them.

Labor Support

Labor and trade union support was evidenced by: (1) Appointment of 12 labor leaders to civil defense positions in the DOD Executive Reserve Program; (2)

activities of the American Federation of Labor and Congress of Industrial Organizations in supporting civil defense legislation, sponsoring a civil defense program broadcast over 136 radio stations, showing OCD exhibits, and distributing civil defense educational material; (3) free use of personnel and trucks furnished by the International Brotherhood of Teamsters to help stock public fallout shelters in many cities; and (4) increased space devoted to civil defense in labor publications.

Coordinated Federal Support

Federal civil defense efforts are coordinated through the OCD where use of Federal resources are focused on priority programs and activities. Transfer of major civil defense functions to the Department of Defense in August 1961 made this possible, and the OCD has pursued this action fully by increased use of DOD resources for civil defense and by coordinating civil defense operations of Federal civilian agencies.

Military Role and Support

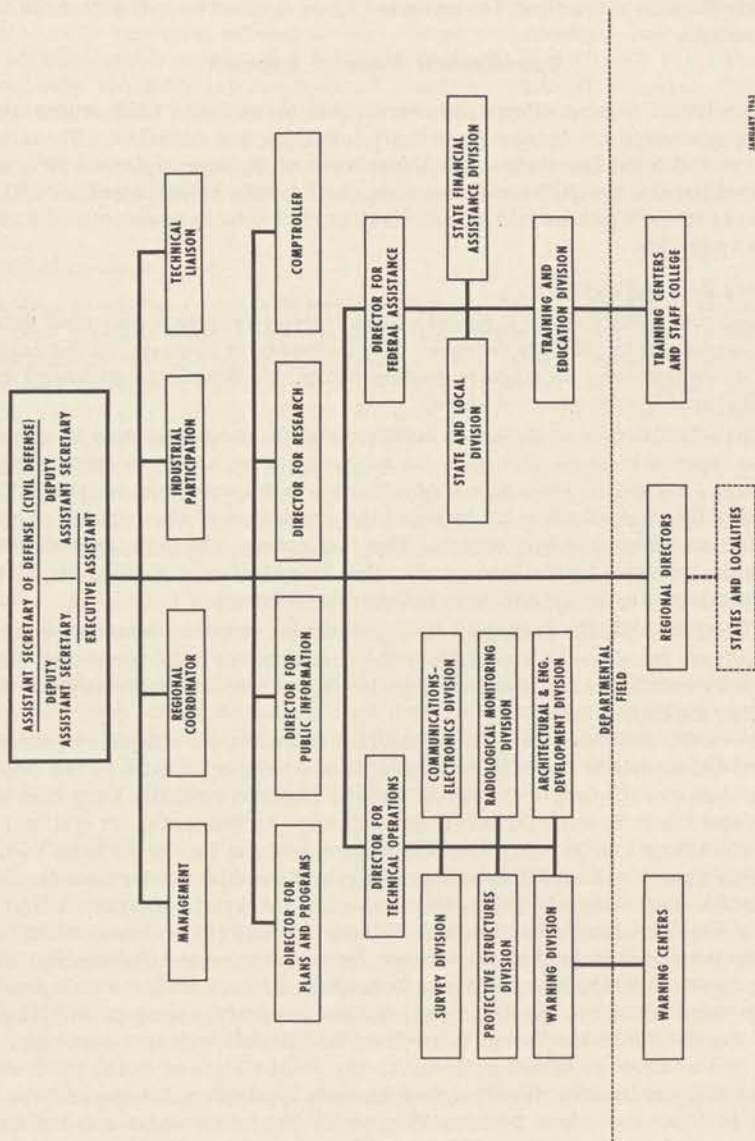
Fiscal year 1963 marked a period of conclusive recognition that civil defense is a complement of military defense. The Secretary of Defense, on January 31, 1963, in his testimony on military posture before the Committee on Armed Services, House of Representatives, stated:

The effectiveness of an active ballistic missile defense system in saving lives depends in large part upon the existence of an adequate civil defense system. Indeed, in the absence of adequate fallout shelters, an active defense might not significantly increase the proportion of the population surviving an all-out nuclear attack. For this reason, the very austere civil defense program recommended by the President . . . should be given priority over any major additions to the active defenses.

On April 23, 1963, the Secretary, by departmental directive, established certain civil defense functions as a mission of the armed forces to be performed during emergency conditions involving nuclear attack for conditions preceding nuclear attack on the United States.

Use of DOD resources for civil defense, too extensive for complete coverage in this report, included: (1) Management of shelter supply logistics by the Defense Supply Agency; (2) help of the Army Corps of Engineers and the Navy Bureau of Yards and Docks in national survey of shelters; (3) integration of civil defense communications into military communications systems by the Defense Communications Agency; (4) publications, printing, and distribution services furnished by The Adjutant General's Office, Department of the Army; (5) payroll and disbursing functions handled by the Army Finance Office; (6) training of local civil defense personnel in explosive ordnance reconnaissance and radiological monitoring by the U.S. Continental Army Command; (7) warning services provided by the North American Air Defense Command; (8) arrangements with the Air Force for the Civil Air Patrol to perform aerial radiological monitoring; (9) study and analysis of attack patterns by the Joint Chiefs of Staff, the Defense Atomic Support Agency, the Weapons Systems Evaluation Group, and the National Military Command Systems Support Center; (10) legal and legislative liaison services furnished by the DOD General Counsel and the Assistant to the Secretary of Defense (Legislative Affairs); (11) public information services provided by the Assistant Secretary of Defense (Public Affairs); and (12) availability of Standby Reserve officers to State and local governments for assignment of civil defense functions.

OFFICE OF CIVIL DEFENSE • DEPARTMENT OF DEFENSE



JANUARY 1963

Figure 1

Support by Other Federal Agencies

In accordance with Executive Order 10952 assigning major civil defense responsibilities to the Secretary of Defense, the OCD works with other Federal agencies to develop and execute civil defense programs. The Office of Emergency Planning advises and assists the President relative to the total civil defense program and is responsible for the continuity of government programs at Federal, State, and local levels. Under Executive Order 10958, certain civil defense responsibilities with respect to food and medical stockpiles were assigned to the Secretaries of Agriculture, and Health, Education, and Welfare, respectively.

In addition to nine Executive Orders (10997-11005) signed in February 1962, the President signed nine Executive Orders (11087-11095) in February 1963, generally prescribing emergency preparedness functions of the several departments and agencies under all emergency conditions. To a limited degree, most of these Executive orders include civil defense functions that must be carried out in consonance with national civil defense plans, programs, and operations of the Secretary of Defense. The OCD uses contractual arrangements with Federal departments and agencies to coordinate other civil defense functions performed by them.

In January 1963, Regional Civil Defense Coordinating Boards were established to coordinate civil defense plans and action of all military departments and Federal agencies with State and local civil defense operations.

State and Local Response

Ultimate success of civil defense requires positive response from State and local governments and from industrial, organization, and community leaders. Several facts during fiscal year 1963 revealed that this response was forthcoming. There is reason to expect that it will continue in proportion to civil defense leadership shown by the Federal Government in helping to provide fallout shelter space. Two major examples of this were:

1. Willingness of tens of thousands of building owners and managers to make their buildings available for public fallout shelters. Despite natural public dislike for the necessity of providing self-protection against nuclear attack, less than 10 percent of building owners and managers covered by the shelter survey have declined to make their buildings available as public shelters without compensation. This includes the use of valuable storage space for shelter supplies.

2. Participation of all State and approximately 5,000 county and municipal governments in the local management and installation of supplies in public fallout shelters.

Organization of Civil Defense

Since its inception, the OCD has been organized according to a functional pattern. The organizational structure at the end of fiscal year 1963 is shown in figure 1. Of a total personnel ceiling of 1,068 positions, 448 were at departmental level, 470 at 8 OCD regional offices (see fig. 2), and 150 at various field locations.

Financial Summary

Approximately \$128.1 million was available to the Office of Civil Defense for obligation in carrying out civil defense operations during fiscal year 1963. Of this amount, \$2.3 million was carried over from fiscal year 1962 to be used for construction of facilities. The balance of \$125.8 million was from new appropriations made available for fiscal year 1963.

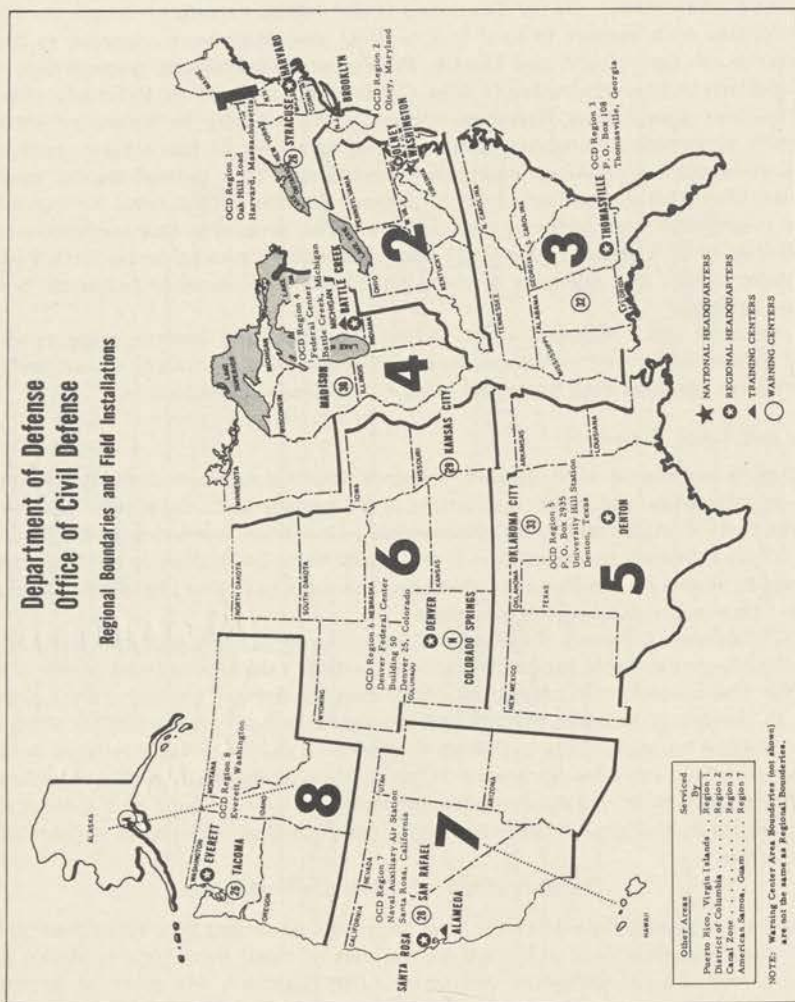


Figure 2

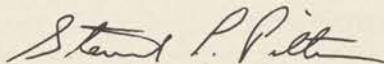
FINANCIAL SUMMARY FOR FISCAL YEAR 1963

(In Thousands of Dollars)

Budget activity	Funds available for obligation	Funds obligated
GRAND TOTAL-----	128, 145	109, 443
OPERATION AND MAINTENANCE—TOTAL-----	72, 845	72, 436
Warning and detection-----	14, 147	14, 084
Warning and alert-----	4, 120	4, 066
Radiological fallout detection and moni- toring-----	8, 890	8, 884
Warehousing and maintenance-----	1, 137	1, 134
Emergency operations-----	17, 551	17, 308
Communications and control-----	1, 567	1, 525
Damage assessment-----	1, 608	1, 590
Training and education-----	9, 869	9, 821
Public information-----	4, 107	3, 977
Industrial participation-----	300	295
Red Cross advisory services-----	100	100
Financial assistance to States-----	27, 500	27, 464
Survival supplies, equipment, and training-----	6, 760	6, 738
Emergency operating centers-----	7, 800	7, 786
Personnel and administrative expenses-----	12, 940	12, 940
Management-----	13, 647	13, 580
RESEARCH—TOTAL-----	53, 000	36, 886
Shelters-----	42, 000	30, 107
Shelter survey and marking-----	9, 300	3, 967
Shelter stocking-----	32, 700	26, 140
Research and development-----	11, 000	6, 779
CONSTRUCTION OF FACILITIES—TOTAL---	2, 300	121

Figure 3

At the end of the year, OCD had obligated more than \$109 million. The \$18.7 million of unobligated funds includes \$18.3 million carried over into fiscal year 1964, leaving a balance of \$0.4 million no longer available. The amounts obligated for specific operational programs and activities are shown in figure 3.

A handwritten signature in dark ink, appearing to read "Stuart L. Pittman". The signature is fluid and cursive, with the first name "Stuart" being more prominent and the last name "Pittman" following in a similar style.

STUART L. PITTMAN,
Assistant Secretary of Defense
(Civil Defense)

Annual Report
of the
SECRETARY OF THE ARMY
July 1, 1962, to June 30, 1963

Contents

	Page
Chapter I. INTRODUCTION.....	105
II. OPERATIONAL READINESS.....	107
III. REORGANIZING THE ARMY.....	119
IV. DEVELOPMENTS IN DOCTRINE AND TRAINING.....	123
V. THE ULTIMATE WEAPON.....	132
VI. THE SINEWS OF WAR.....	141
VII. NEW TOOLS AND WEAPONS FOR THE SOLDIER.....	156
VIII. PUBLIC WORKS.....	167
IX. CIVIL AFFAIRS.....	172
X. AIDING OUR ALLIES.....	177
XI. RETROSPECT AND PROSPECT.....	180

1. Introduction

During the past year the United States has placed increased reliance upon its Army in the effort to achieve national objectives. To fulfill this trust, the Army has improved its combat capability and efficiency on all levels so that it will be prepared for any emergency—great or small. It has built a balanced force that can turn back aggression at the village level or on a broad front. In the process the Army has reorganized its staff and major commands to produce a better command structure. By reorganizing Army divisions according to the ROAD concept, it is providing the field commanders with flexible fighting forces that can be tailored to respond to any situation. As a result of the experience gained during the callup of the reserve components in 1961-62, the Army has also reorganized its reserves in order to furnish the active forces with better prepared reinforcements that can be utilized more swiftly.

Internal improvements have been accompanied by other changes. The Army, to carry out its mission, must have troops that are mobile and versatile. To develop these requirements, the Army has emphasized increased air mobility, special warfare training, and a far-ranging school program.

However, increased funds, modernization of arms and equipment, intensified school programs, and vigorous training in jungles, snow-covered wastelands, deserts, and swamps are only the prelude. It is in times of crisis and in actual performance that the Army's capabilities are judged. Army troops in Vietnam, advising and supporting the Vietnamese, are meeting the test. The experience gained in Vietnam is being applied to Army training programs and will provide valuable guideposts for future Army developments in countering and defeating insurgent and guerrilla activities under similar circumstances.

In the crisis over Cuba the Army successfully tested the ability of its staff machinery and logistical support system to respond to a tense situation. Under the shadow of war the Army moved men and equipment into positions from which they could be used quickly and effectively should the need arise. Elsewhere around the world there were other areas of tension, such as Berlin and Korea, which might have involved the use of Army forces under certain conditions.

Army troops are ready at home to defend the Nation against attack or to reinforce oversea forces in the event of crisis. Abroad they are part of the military shield in Europe and Asia. Together with the Navy and Air Force, they are prepared to resist aggression and to defend freedom.

Army personnel are also instructing the military forces of our allies in the use of weapons, in tactics, and in other active and passive measures to enable them to defend themselves against covert or overt aggression. In addition, the Army's long experience in building a nation through civil works and civic action is being put to increasing use as a means of strengthening constitutional governments in many of the underdeveloped areas of the world.

II. Operational Readiness

The Army at the end of fiscal year 1963 had an approximate strength of 975,000. Of that number, nearly 400,000 were deployed beyond the borders of continental United States to counter the Communist threat.

Deployment of the Army

U.S. Army, Europe

In the U.S. European Command, the Army component is the U.S. Army, Europe (USAREUR). The core of USAREUR in 1963 was the Seventh Army, composed of two corps with three infantry divisions—one division having a brigade with an airborne capacity—two armored divisions, four armored cavalry regiments, surface-to-surface and surface-to-air missile battalions, and necessary supporting units. Equipment for two additional divisions is in position on the Continent to permit reinforcements from the United States to become combat ready quickly in the event of another emergency.

Reorganization of the three infantry divisions as mechanized commands according to the Reorganization Objective Army Divisions (ROAD) concept began in February 1963. Although the over-all strength in USAREUR was reduced slightly in fiscal year 1963, that in Berlin, increased during the crisis of 1961, was not. The Berlin Brigade at the end of fiscal 1963 contained three battle groups and a reinforced tank company, as well as combat and administrative support units.

The Army's Southern European Task Force (SETAF), in the northeastern plain of Italy, provides means for ground-delivered atomic support to NATO forces in that area.

U.S. Army in the Pacific

Units of the U.S. Army in the Pacific (USARPAC) are deployed widely over a 6,000-mile front in the Pacific and Far East. Headquarters, USARPAC, together with the U.S. Army, Hawaii, and the 25th Infantry Division, is in Hawaii, along with support and defense units.

In Korea, the Eighth Army contains the 1st Corps Group and the 1st Cavalry and the 7th Infantry Divisions, an air defense brigade, a missile command, and separate engineer and aviation units. The bulk of the forces are deployed just south of the demilitarized zone, facing

the Communist North Korean Army. Supporting the Eighth Army is the 7th Logistical Command. A large U.S. advisory group has continued to work with the Republic of Korea Army to help develop and maintain its force structure.

Although the U.S. Army, Japan, operates a major logistical complex at Camp Zama, USARPAC has no combat forces stationed in that country.

On Okinawa, USARPAC has the U.S. Army, Ryukyus, which administers the IX Corps, an airborne brigade, and an air defense brigade.

The most distant outposts of USARPAC are in southeast Asia. Military assistance commands in the Republic of Vietnam and Thailand control over 12,000 U.S. Army personnel in Military Assistance Advisory Groups (MAAGs) and support forces such as engineer, signal, aviation, medical, ordnance, quartermaster, military police, transportation, and intelligence units. In Thailand, the support units are administered by the 9th Logistical Command and in Vietnam by the U.S. Army Support Group, Vietnam.

Other U.S. Army personnel are in MAAGs in Taiwan, Cambodia, and the Philippines, in the Military Technical Advisory Group in Indonesia, and on the Military Equipment Delivery Team, Burma.

U.S. Army, Alaska

In the far north, the U.S. Army, Alaska (USARAL), is the Army component of the Alaska Command. Headquarters, USARAL, in fiscal 1963 was located at Fort Richardson, with the bulk of USARAL strength stationed there and at Forts Wainwright and Greely. Two infantry battle groups in USARAL are scheduled to be converted to ROAD during July 1963. After the reorganization there will be two mechanized brigades for ground defense. In addition, two and one-quarter NIKE-HERCULES guided missile battalions are stationed in Alaska. Storage facilities in USARAL are limited, but in case of emergency, stocks can quickly be sent from the United States.

U.S. Army Forces, Southern Command

Defending the southern approaches to the United States is the Army component of the U.S. Southern Command, the U.S. Army Forces, Southern Command (USARSOUTHCOM). Formerly called the U.S. Army Caribbean, USARSOUTHCOM was established on June 6, 1963. By the end of the fiscal year it contained an infantry brigade that had been reorganized under ROAD during the first half of the fiscal year. Major units of the brigade are a mechanized infantry battalion, an infantry battalion, and an airborne battalion. In Puerto Rico USARSOUTHCOM has the subordinate Antilles Command, with headquarters in San Juan.

STRAF-STRAC

The main reserve, backing up the nearly 400,000 men deployed overseas, is the Strategic Army Force (STRAF) and its component, the Strategic Army Corps (STRAC). STRAC is a two-corps force composed of eight divisions. The XVIII Airborne Corps, with headquarters at Fort Bragg, N.C., includes the 82d and 101st Airborne Divisions and the 1st and 2d Infantry Divisions. In III Corps, with headquarters at Fort Hood, Tex., are the 1st and 2d Armored Divisions and the 4th and 5th Infantry Divisions. The 1st Armored and the 5th Infantry Divisions replaced the 49th Armored and the 32d Infantry Divisions in STRAC when those National Guard units were released from Federal service in August 1962. The two mobile corps—one essentially airborne and the other strong in armor—give the Army great flexibility to deal with multiple situations in widely separated areas; they can quickly provide a reinforced infantry company or a complete corps to handle a crisis on any part of the globe.

Hostilities in Vietnam

The heaviest demands upon the Army during the fiscal year were made upon the forces deployed in the Republic of Vietnam. There 33 Army personnel lost their lives as the United States continued to help the Government of Vietnam in its fight against the Communist Viet Cong. In spite of losses, the results were encouraging, and progress was made in wresting the initiative from the Viet Cong.



Figure 1. Wire and steel posts for protective fencing around a strategic hamlet, Vietnam.

At the heart of the counterinsurgency effort in Vietnam is the *strategic hamlet* program with its threefold purpose: To consolidate the people into strategic hamlets under government control; to recruit, arm, and train a local paramilitary force—the Self-Defense Corps—to defend the hamlets; and to win the support and confidence of the people in the hamlets through economic and materiel assistance and sound advice. By the end of the fiscal year, Army personnel had played a significant role in helping the Government of Vietnam establish nearly 6,000 of approximately 11,000 planned strategic hamlets. An extension of the Government of Vietnam strategic hamlet program has been carried out in the Viet Cong-dominated areas by U.S. Army Special Forces personnel. This program is continuing to be of significant value in denying to the Viet Cong needed intelligence, cover, personnel replacements, and logistic support.

As a complement to the strategic hamlet program, the Government of Vietnam has carried out military operations to “clear and hold” areas formerly under Viet Cong domination. Successful offensive moves against Viet Cong training bases, supply areas, and communications have allowed the Vietnam Government to gain the initiative, expand its control, and extend the strategic hamlet system. Increased U.S. financial and advisory support coupled with a rise in the size and combat effectiveness of the Republic of Vietnam Army has helped to spur the effort. Much of the credit is due to joint U.S.-Vietnam intensified action in training and developing junior Vietnamese leaders at the company and platoon level. By increasing the strength and improving the training of the Civil Guard and Self-Defense Corps, the Vietnam Army has been able to relieve many of its units from static defense assignments and use them instead in offensive operations.

In many ways, the fighting in Vietnam resembles the American Indian wars of the 19th century. There is no front, no depth to the combat area, and control is decentralized. Operations are widely scattered and—much like the old Indian raids—hit and run. There is one major difference, however, for where there was seldom any hesitation about recognizing the enemy in America, the Viet Cong forces can usually be identified only after they have committed an overt hostile act. Because of the fluidity of the operations and the ease with which the enemy can revert to peaceful pursuits after an action, mobility has become a vital factor in combating the Viet Cong threat.

To a very large degree, the ability to move quickly has been provided by the U.S. Army helicopter units serving in the Republic of Vietnam. Since the Vietnam Army did not have organic aviation, U.S. Army aviation units were assigned in direct support of Vietnam Army corps, but have remained under the operational control of the senior U.S. advisor to the corps. This system insures adequate sup-

port, quick reaction, and responsiveness to the combat needs of the Vietnamese commander. Army aviation units during fiscal 1963 flew approximately 100,000 sorties and transported 275,000 troops and 9,000 tons of cargo. As soon as a report of enemy activity was received, one or more helicopter companies, using CH-21 or UH-1B aircraft, quickly delivered reinforced Vietnamese rifle companies to the scene of the operation. These helicopters were escorted by armed UH-1B helicopters and/or by Vietnamese-manned T-28 trainers. By exploiting speed, mobility, and surprise, the Vietnamese forces have been able to strike the Viet Cong quickly.

In addition to heliborne missions, U.S. Army aviation units in Vietnam have performed many other tasks. Helicopters and larger fixed-wing aircraft, such as the Otter and Caribou, have been used to transport men and supplies to outlying and isolated installations. The OV-1A Mohawk has undertaken visual and instrument surveillance tasks and has proved to be very effective. The intelligence derived from these missions has been used by the Vietnamese in planning both ground and air mobile operations and in developing target data for artillery fires and air strikes.

The Army also has provided assistance in the form of jeeps carrying audio-visual equipment and has furnished other materiel assets to help the Government of Vietnam in its psychological operations against the Viet Cong. Army Psychological Operations Mobile Training Teams and other personnel have been working as members of the U.S. Interagency Psychological Operations Working Group in Vietnam in an effort to develop a country-wide, coordinated psychological operations plan.

Although the situation improved during the year, there are and will continue to be some failures and setbacks in the continuing struggle in Vietnam. In the meantime, emphasis under the Military Assistance Program will be devoted to providing training and advisory and logistic support to the Vietnamese armed forces. In addition, considerable effort will be given to civic action projects and strategic hamlet development.

The Cuban Crisis

Closer to home than the challenge in Vietnam was the Communist threat in Cuba that developed during fiscal year 1963. When the crisis over the U.S.S.R. buildup of missiles in Cuba arose in October 1962, the Army moved swiftly to prepare for an outbreak of hostilities. On October 16 it designated the Commanding General, U.S. Continental Army Command, as Commanding General, U.S. Army Forces, Atlantic, to assist the Commander in Chief, Atlantic, in contingency planning for an assault on Cuba.

War rooms and operational headquarters went on a wartime footing in mid-October and the Army sent alerts to its forces around

the world. After President Kennedy's speech on the crisis on October 22, the Army began to move combat and support units to assembly areas. The 1st Armored Division moved on October 23 from Fort Hood, Tex., to Fort Stewart, Ga., where it would be more accessible to port facilities. Signal units came from Fort Gordon, Ga., Fort Carson, Colo., and Fort Bragg, N.C.; artillery batteries and replacement companies from Fort Lewis, Wash.; ordnance units from Fort Meade, Md.; transportation companies from Fort Eustis, Va.; hospital trains from Ogden, Utah; field hospitals from Fort Leonard Wood, Mo., Fort Sam Houston, Tex., and Fort Bragg; and quartermaster units from Fort Lee, Va.

Nearly 30,000 troops and over 100,000 tons of equipment were moved during the crisis. Rail, highway, air, and water routings for both personnel and materiel were centrally controlled by the Defense Traffic Management Service to insure full utilization of available resources. Troop units were located near outloading ports so that they might reach the objective area quickly, should the need arise.

The Army established forward headquarters of U.S. Army Forces, Atlantic, at Homestead Air Force Base, Fla., to coordinate Army activities in the base areas, and set up the Peninsula Base Command at Opalocka Air Force Base, Fla., to provide logistical and administrative support of all Army troops in the Florida area. It directed the initial movement of these two headquarters on October 23.

To support emergency operations, the Army acquired 44 properties by lease for the Army and Air Force in the southeastern area. It prepositioned stocks throughout the base area as well as with par-



Figure 2. The 1st Armored Division conducting landing exercises during the Cuban crisis.

ticipating units. Based on prepositioned requisitions, Army supply and parts depots prepared items against possible future demands.

In the meantime, the U.S. Third Army executed plans for the defense of the southeastern United States and the Florida Keys. NIKE-HERCULES missile units were deployed to provide area defense against medium and high altitude targets and HAWK missile units guarded against low-level attacks. These air defense missile units occupied positions in the Miami, Homestead, and Key West areas.

The Army force remained ready until the crisis passed. Redeployment began on November 29 when the first Army unit, a signal battalion, departed for Fort Bragg. By December 20 all major Army combat units had returned to home stations, with the exception of the air defense units still defending against the existent Cuban air threat. Costs for the Army movements and preparations during the crisis amounted to \$70.5 million.

During the Cuban crisis a number of problems arose. Although they would not have interfered seriously with the Army's participation in operations, some did cause concern. Not all units committed to the operation were initially at optimum deployable strength. The deficiencies were caused by a shortage of sufficient personnel in the active Army to maintain all units and activities at full strength; by unprogramed requirements, such as Vietnam; and by the objective of maintaining oversea theaters as near full strength as possible. The problem was further aggravated by the loss of trained personnel through expiration of terms of service and voluntary separations. As a result, major adjustments in personnel strength had to be made.

In the movement of supplies and equipment, there were some shortages in transportation equipment; these were overcome by shifting to alternate modes. A shortage of amphibious-type shipping, including roll-on/roll-off transport, and limited port capacities in the objective area would have delayed introduction of additional forces and supplies into the area; additional amphibious shipping would have permitted over-the-beach off-loading.

The shortage of Army aviators and of officers for civil affairs staffs and units was made up for the most part by temporary transfers from the most readily available sources of qualified personnel. An increased number of personnel qualified in these specialties will be required to rectify this situation.

Units committed to the Cuban plan in many instances were equipped with substitute items because of a shortage of authorized modern equipment. An example was the M-59 personnel carrier which had to be employed pending the availability of the M-113. The worldwide shortages in certain items of equipment were highlighted by the imminent implementation of a contingency plan.

During the crisis the inadequacy of communications to and within Latin America became more apparent, and orders were received to make immediate improvements. As a result, leased land lines and submarine cable circuits to Latin America have been provided and new radio facilities within Latin America have been installed.

Berlin

In contrast to the Republic of Vietnam and Cuba, Berlin was relatively quiet during the fiscal year. The East German Communist regime attempted to seal off contacts with West Berlin by creating an impregnable no-man's land along the "Wall," but refugees continued to devise means for breaching or circumventing the barrier.

As visible evidence of U.S. determination to remain in Berlin, the Berlin garrison carried out a rigorous training program within the garrison area and in major U.S. training areas in West Germany. The Army placed emphasis on perfecting individual and unit skills essential to the success of the Army's mission in Berlin. Training in combat in cities, riot control, marksmanship, physical fitness, tactical exercises, and drill and ceremonies were stressed.

During the year, battle groups were flown from the United States to West Germany and then moved into Berlin as a test of strategic mobility. The 1st Battle Group, 8th Infantry; 2d Battle Group, 12th Infantry; 1st Battle Group, 13th Infantry; and 1st Battle Group, 28th Infantry, each spent about 3 months in Berlin on a rotating basis.

USAREUR troops in western Europe also trained vigorously and carried out a number of exercises during the year. Among the most important of these were: FALLEX 62, a theater-wide command post and field training exercise, which included air and ground staff participation; HIGHPOINT, a joint and combined unconventional warfare field training exercise conducted in the NATO area; and SOUTHERN EXPRESS, a field training exercise in which the Mobile Land Force of Allied Command, Europe, was deployed from Central Europe to Greece. A shortage of areas near home stations suitable for combined arms training of reinforced company-sized units, river crossings, and airborne drops handicapped USAREUR forces to some degree. The growing forces of the Federal Republic of Germany required more training space and were allocated additional range time at U.S.-controlled major training areas. Despite these obstacles, at the end of the fiscal year USAREUR troops were in excellent condition and combat ready to respond to any emergency situation.

Other Potentially Critical Areas

Elsewhere around the globe, the Communists exerted pressure in Laos and India, posed a threat to Thailand, and sought to widen their

beachhead in the Americas. In Laos, the Pathet Lao carried on military operations on the Plain de Jarres and endangered the accords reached in Geneva. On October 6, 1962, the U.S. Military Assistance Command was disestablished and evacuated in pursuance of the Geneva Accords; there were no U.S. forces in Laos at the end of the fiscal year.

Across the border in Thailand, the Joint U.S. Military Assistance Group and the 9th Logistical Command contained over 3,000 personnel at the end of the year. The U.S. contingent has sought to expand Thailand's economic, military, and logistic base in the event that Communist and insurgent forces should threaten the government with overt or covert aggression. In addition to improving the Thai Army's capabilities through increased advisor and materiel assistance, many civic action projects have been undertaken to improve Thai civilian living standards and relations between civilians and the military forces. For the most part, these projects were in support of programs carried out under South East Asia Treaty Organization (SEATO) auspices and through Thai mobile development units. Over 7,000 U.S. personnel, including a brigade from the 25th Infantry Division, participated in a 25,000-man allied exercise in Thailand. After the exercise was completed, a U.S. engineer company remained to carry out civic action tasks.

As a result of the outbreak of hostilities along the India-China frontier in October 1962, the Indian Government appealed to the United States for assistance. The United States responded with a program to help India maintain its internal security and resist external aggression. The U.S. Military Supply Mission, India, was established under the military command of the U.S. Commander in Chief, Europe. The Army carried the primary share of the task of administering the program and supplied about two-thirds of the personnel in the mission. Considerable quantities of materiel were delivered to India during the fiscal year.

In the Western Hemisphere the United States attempted to strengthen the bonds of friendship and understanding with its sister republics and to stiffen opposition to additional Communist inroads. In furtherance of this effort, the Army provided numerous Mobile Training Teams from its area-oriented Special Action Force to furnish advice and guidance to the Latin American republics. At Fort Amador, Canal Zone, the Third Annual Conference of the Americas was held in July 1962 under the sponsorship of USARSOUTHCOM. The conference provided an opportunity for Army leaders of the various countries in the Western Hemisphere to meet, exchange ideas, and discuss mutual problems. In May 1963, the Army participated in the removal of U.S. official dependents from Haiti during that country's internal unrest and dispute with the Dominican Republic.

Support of Civil Authority

The external security of the Nation is but one facet of the Army's responsibilities. Failure by State officials to comply with Federal court orders led to military support of civil authority on two occasions during the fiscal year. Coordinating with the Department of Justice, the Department of the Army provided military forces to discharge this responsibility.

In September 1962, a Federal court order called for the registration and attendance of a Negro student at the University of Mississippi, Oxford, Miss. To support civil authority some 20,000 active Army and 10,000 federalized Mississippi Army National Guardsmen were deployed or alerted for possible intervention under Executive Order 11053. About 12,000 of the troops were moved into the Oxford area, where they maintained order. A series of strength reductions followed as the situation subsided, and at the end of the fiscal year only 150 active Army personnel remained on duty in the vicinity of Oxford.

The Army also responded to a similar incident in Alabama in June 1963. Federal court orders called for the registration and attendance at classes by two Negro students at the University of Alabama at Tuscaloosa and by another Negro at the university's extension branch at Huntsville. In anticipation of possible disturbances, 15,000 active Army troops and 14,500 federalized Alabama Army National Guardsmen were deployed or alerted under Executive Order 11111 to enforce the court orders. About 1,800 were sent to Tuscaloosa and 50 to Huntsville to maintain law and order. At the end of the fiscal year, 338 troops remained at Tuscaloosa.

Air Defense

Across the country during fiscal 1963 some 24,000 active Army troops together with 8,400 Army National Guardsmen manned approximately 180 NIKE-HERCULES, AJAX, and HAWK missile batteries on a continuous combat-ready status 24 hours a day, 7 days a week. The air defense batteries of the Army Air Defense Command, an important part of the North American Air Defense Command, protect population centers and industrial installations from the threat of air attack.

Civil Defense

During the fiscal year 1963 the Army, in accordance with Defense directives, continued its efforts to locate and set aside fallout shelters against a possible enemy air attack. The Army participated, along with the Navy, in the Joint Civil Defense Support Group, which provided specialized engineering support to the Office of Civil Defense (OCD). Some of the tasks accomplished by the joint group included

posting signs on shelters, negotiating agreements with selected radio station owners to install shelters and emergency operating equipment, and developing plans and costs for incorporating shelters into public and commercial facilities. The joint group also managed and operated the Protective Structures Development Center at Fort Belvoir, Va., which was dedicated in December 1962, to develop and test shelters, using a live radiation source to simulate radioactive fallout conditions.

The Army assisted OCD in developing radiological training programs and conducted radiological monitoring training courses for civilian personnel in communities near military installations. Detailed contingency planning has continued during the year for military support of and emergency assistance to major U.S. metropolitan areas in event of a civil defense emergency.

Intelligence Activities

The production and timely dissemination of intelligence information remains an important adjunct to operational readiness. Although the Defense Intelligence Agency (DIA) assumed responsibility for basic foreign intelligence production on February 1, 1963, and the Army Assistant Chief of Staff for Intelligence lost over one-third of his personnel, the Army intelligence mission continues to be significant.

During the fiscal year the professionalism of personnel engaged in intelligence functions improved. The establishment of the Army Intelligence and Security Branch as a basic branch of the Army in June 1962 resulted in a notable increase in the number of Regular Army officers engaged in an intelligence career as well as an increase in the number of reserve officers on extended active duty in the intelligence field. This new career branch, when fully manned, will greatly enhance the quality and timeliness of the intelligence effort. In addition, greater utilization of warrant officers will also add to professionalism and continuity in the intelligence field.

Abroad, Army attachés were assigned to 86 diplomatic posts. New offices were opened in two countries that had recently gained their independence—Algeria and the Kingdom of Burundi in Africa. An additional office was opened in Kingston, Jamaica, and approval was received to establish an office at Sana, Yemen.

Although DIA has the responsibility for over-all management of manning, charting, and geodesy, the Army during 1963 carried out detailed management of operations and provided resources and production facilities. The Assistant Chief of Staff for Intelligence continued to be Army Program director, but the Chief of Engineers took over the routine staff functions in mapping and geodesy.

Among the important projects being planned or carried out are a geodetic satellite tracking program to provide precise measurements

between long distances on the earth's surface; aerial photography and assistance in field surveys and in the production of topographic maps of Ethiopia; and annotated photomaps of the Republic of Vietnam to provide large-scale map coverage of that area. In addition, work is in progress on surveying and mapping projects in Bolivia, Ecuador, Panama, Colombia, the Sudan, the Mekong River basin in Vietnam, the central Pacific, and Greenland.

Strategic Communications

The growing importance to the modern Army of strategic and special communications capable of quick reaction led to the creation of a new strategic communications unit in November 1962. The unit will be stationed at Fort Lewis, Wash., and assigned to the U.S. Army Strategic Communications Command. When modern equipment, costing \$2.5 million, has been procured, the unit will be 100 percent mobile, air transportable, and, for short periods of time, administratively and logistically self-supporting. To permit pretraining on existing equipment, the unit was activated on a reduced strength basis, but will be brought to its full strength of 404 men early in fiscal year 1964.

Equipment Readiness

The emphasis on keeping troops in a high state of combat readiness was accompanied by increased attention to the problem of maintaining equipment in a similar condition. In order to reduce the time necessary to consolidate and evaluate reports of equipment readiness, a new system was adopted utilizing machine processing. Five categories of readiness were established and related to the time within which a unit was scheduled to deploy. Thus, units selected for early deployment had to maintain a higher state of readiness than those that were to follow later. The designation of equipment as serviceable or unserviceable was discarded and replaced by new color terms which equate to readiness conditions. *Green* equipment was capable of prompt and sustained combat, *amber* signified equipment capable of prompt combat, and *red* meant the equipment was not combat ready.

For supporting forces in forward areas, the Secretary of Defense authorized the *forward floating base concept*. Three Victory ships were removed from the National Defense Reserve Fleet, completely refurbished, and equipped with controlled humidity plants. The ships were then loaded with supplies and heavy combat equipment and stationed in a "ready to steam" position at Subic Bay in the Philippines for immediate deployment to any critical area. Small Army maintenance contingents were placed aboard these ships to keep the equipment continuously in combat-ready condition.

III. Reorganizing the Army

The Army changed its organization in several significant areas during fiscal year 1963. Following plans approved in 1962, command and management were strengthened and simplified. By fixing more clearly the responsibilities and by consolidating like functions under single commands, the Army greatly enhanced its ability to meet effectively all of its operational requirements.

The Army Staff and Major Commands

In Department of the Army headquarters, the reorganization was designed to free the General Staff of many of its operating functions in order to permit it to concentrate on planning, policy-making, and general supervision of the over-all effort.

The possibility that unilateral Army planning for the development of operational forces and systems might be subordinated to the joint aspects of planning, a time-consuming and heavy responsibility of the Office of the Deputy Chief of Staff for Military Operations (ODCSOPS), led to the creation on April 22, 1963, of the Office of the Assistant Chief of Staff for Force Development (OACSFOR). The new office is headed by a lieutenant general with a relationship to the Chief of Staff corresponding to that of a Deputy Chief of Staff.

The responsibilities and resources of ODCSOPS have been divided between the two offices. The DCSOPS has been given primary responsibility in the General Staff for strategic planning, development of broad force requirements, and utilization of combat-ready Army forces. He will continue to serve as the principal advisor to the Chief of Staff on joint matters. The ACSFOR has been responsible for the development of Army forces to provide the maximum balance of operationally ready units within the constraints imposed by manpower and budgetary limitations, including preparing active Army force development plans and detailed Army force structures and supervising implementation of those plans within the approved broad Army force requirements developed by the DCSOPS. Under ACSFOR there are four major focal points: Army aviation; chemical, biological, and radiological operations; nuclear and air defense; and tactical mobility matters. This organizational step has the dual purpose of concentrating staff agency attention on the joint aspects of Army operations while providing increased emphasis and staff pres-

tige in unilateral efforts to develop the Army's resources. At the close of the year the new arrangement was functioning satisfactorily, although more time will be required to evaluate it fully.

Still in the DCSOPS area, the Army's broad responsibility in civil affairs was given additional emphasis and increased importance when the former Office of the Chief of Civil Affairs was made an integral directorate in the Office of the Deputy Chief of Staff for Military Operations. This insures the close and effective coordination of action with the other three ODCSOPS directorates (Plans, Operations, and Special Warfare) and other elements in the Army staff.

To strengthen the Army's reserve program, the Office of Reserve Components (ORC) was established on January 2, 1963, under a lieutenant general. Staff responsibility for the development of Army Reserve Forces, including authority to exercise general staff supervision over all plans, policies, and programs affecting the reserve components, was centralized in the new office. In February the Reserve Officers Training Corps (ROTC) program was transferred to ORC from the Office of the Chief of Army Reserve.

The newly established agency under an officer with elevated rank permits authoritative coordination and management of Army staff activities in support of the reserve components program without, however, affecting either the statutory authority of the Chief of the National Guard Bureau to advise the Chief of Staff on matters pertaining to the Army National Guard or his statutory function as the channel of communications between the Department of the Army and the State Adjutants General.

Another staff development connected with the reorganization is the consolidation of military personnel management operations in Department of the Army headquarters in a new Office of Personnel Operations (OPO). The objective of this change is to centralize control over the career development and assignment of officer and enlisted personnel. Establishment of OPO on July 1, 1962, brought together in one agency the personnel actions that were formerly performed in some 20 locations in the general and administrative staffs and in the Technical Services. Integration of these operations and, consequently, more positive control have made possible a more effective utilization of total military personnel resources through increased flexibility of assignment and improved career planning.

As outlined in the 1962 report, a major aim of the Army reorganization was to create a single integrated support command to exercise unified direction and control over the wholesale materiel support the Army provides the military forces. The Army Materiel Command was established early in the fiscal year to perform the materiel func-

tions formerly assigned to the Technical Services, and to assume the command and operational materiel functions previously scattered among other Army staff and field command elements. Activated with the parent organization were seven subordinate commands, the commodity-oriented Electronics, Missile, Mobility, Munitions, and Weapons Commands, and the supporting Supply and Maintenance and Test and Evaluation Commands. The Army Materiel Command provides command supervision over equipment from development through production to supply, and for the duration of its life in the Army inventory. The several logistics systems of the past have thus been replaced by an integrated system under a single commander, enabling the Army to look to one source in wholesale materiel matters.

Army doctrine represents another field that has been placed under one commander in an integrated agency. The Combat Developments Command was established during the fiscal year to carry out combat development functions for the Army, publish current doctrine, and explore and develop concepts for future employment of forces. The command has assumed responsibilities previously assigned to the Continental Army Command (CONARC), technical and administrative services, and other agencies.

Central direction and control over a school and training program that had been dispersed among a number of agencies was obtained through a reorganization of the Continental Army Command and assignment to it of the major responsibility for schools and individual and unit training. CONARC now directs the training of personnel of the combat arms and most of the technical and administrative services.

The new Department of the Army organization has produced improved staff unity, a framework susceptible to advanced management techniques, and a structure more responsive to changing national defense conditions. The reorganization has revealed outmoded systems and the need for further realignment and improvement of organization and procedures. The intrusion of the Cuban crisis at a critical juncture of organizational change challenged the capability of both the staff and major command elements. Instead of disrupting the reorganization process, the crisis accelerated the assumption of responsibilities by the new agencies.

Comprehensive studies of Department of the Army organization, functions, and procedures continued throughout the year at departmental and field levels to determine existing or potential problems raised by the reorganization, to solidify command and staff responsibilities at all echelons, and to modernize the channels of communication. Additional changes of importance may be expected as a result of efforts to refine organizational steps already taken and moves to improve utilization of manpower and increase force levels.

The Ready Forces

Following the activation of two prototype divisions (the 1st Armored and 5th Infantry) under ROAD in 1962 and confirmation of the validity of the new concept, the Army in January 1963 began implementing the ROAD program on a broader scale with the conversion of the 2d Infantry Division at Fort Benning, Ga. The reorganization of units under ROAD has introduced major changes in command and control, organizational flexibility, mobility, sustained combat power, and nonnuclear firepower. A functional logistical support capability has been created within the division.

The new organization makes it possible to tailor task forces to terrain and missions. Within the fixed division base, varying types and numbers of battalions—to a total of 15—can be combined to accomplish specific tasks. An example of organizational flexibility was provided by the 2d Infantry Division, which, with 10 battalions assigned, maintained 2 of its 4 mechanized battalions in Europe and rotated them every 6 months. The advantages of this type of organization in connection with emergency use of reserve component units is apparent—battalions or companies can easily be earmarked for reinforcement of active Army divisions in situations calling for limited mobilization, with limited disturbance to the economy.

By the end of fiscal year 1963 the Army had five ROAD divisions: 1st Armored, 2d Infantry, 5th Infantry (Mechanized), 8th Infantry (Mechanized), and the 24th Infantry (Mechanized). Three separate brigades were also organized on ROAD lines, and the 3d Infantry Division (Mechanized) and 173d Airborne Brigade were undergoing conversion. The remaining 10 active Army divisions are scheduled for ROAD conversion by the end of fiscal year 1964.

Realignment of the Reserve Components

As the fiscal year opened, the reserve components had two combat divisions, one training division, and 438 nondivisional combat and combat support units on active duty. This force, containing 113,254 reservists, had been mobilized in 1961 to meet the Berlin crisis. To reinforce these units if necessary, seven combat divisions of the Ready Reserve Strategic Army Force were authorized 71 percent of TOE strength and assigned a mobilization readiness objective of from 14 to 20 weeks.

The mobilization occasioned by the crisis produced invaluable experience for improving readiness plans for future callups; the release of the reservists in August 1962 was a test of demobilization procedures. During the active duty period, planning was continuous on the complex logistical and administrative actions connected with demobilization, and this resulted in a smooth and efficient release of units.

One of the noteworthy features of the demobilization was its accompanying public relations program. Demobilization processing, the individual's military obligation, the mission of the reserve components, and the desirability of continued service were explained to the troops scheduled to be released from active duty. Each reservist was given a pamphlet explaining his rights, obligations, and privileges. Active service was recognized in ceremonies at duty stations attended by senior representatives of the Secretary of the Army. Recognition certificates were presented to all who served honorably, special awards were given for distinguished service, and welcoming ceremonies attended by local, state, and Army officials were organized at home stations in 300 communities. A substantial number of reservists who completed their military obligation with the demobilization have continued to participate in the reserve program, indicating their willingness to serve again on active duty should the need arise.

The reorganization of the Army pointed up the need for realignment of the reserve structure to improve its readiness as a base for rapid mobilization in an emergency. In particular, the addition of two divisions to the active Army structure placed heavier responsibility on the reserve components to provide nondivisional support units.

The realignment of the reserve structure resulted in the creation of the Immediate Reserve and the Reinforcing Reserve. The Immediate Reserve consists of those units of the reserve components planned for early utilization in augmenting the air defense of the United States, reinforcing the active Army, providing division forces for early deployment, supporting specific contingency and partial mobilization plans, support for other Services, and initial expansion of the active Army mobilization base. The Reinforcing Reserve consists of all other units of the reserve components.

Reserve component reorganization has involved the elimination of about 1,800 old units and creation of over 1,000 new ones. A 700,000 paid-drill strength ceiling was retained while the number of Immediate Reserve units was increased. Four National Guard and four Reserve divisions were converted to separate headquarters, brigades, and other nondivisional units. Eight low-priority divisions were thus replaced by eight Immediate Reserve ROAD brigades, while nine command headquarters divisions were retained with the mission of supervising administration and training of designated nondivisional units and serving as potential division headquarters cadres in a full mobilization.

In June 1963 the Army designated four National Guard infantry divisions (26th of Massachusetts, 28th of Pennsylvania, 30th of North Carolina, and 42d of New York) and two armored divisions (30th of Tennessee and 50th of New Jersey) as elements of the Immediate Re-

serve with an authorized TOE strength of 80 percent and a readiness objective of 4 to 8 weeks. In addition, the 38th Infantry Division of Indiana and the 47th of Minnesota were assigned special mobilization missions and placed in the Immediate Reserve with an authorized TOE strength of 70 percent.

Approximately 58 percent of Army National Guard strength is thus in the Immediate Reserve divisions and supporting units, while 77 percent of the Army Reserve is committed to that part of the Immediate Reserve which would round out support for the active Army and National Guard divisions in a partial mobilization.

This reorganization increased the strength and readiness in Immediate Reserve units and reduced the requirement for fillers from the Ready Reserve Mobilization Reinforcement Pool (RRMRP). Because most units would be mobilized at the 70 to 80 percent TOE strength imposed by paid-drill strength limitations, a rapid assignment and assimilation of fillers will be essential to reach optimum effectiveness. Under a revised filler plan, preselected volunteers of the RRMRP will report directly to designated Immediate Reserve units upon mobilization.

Increased readiness objectives enhanced equipment priorities for reserve components. Although some equipment was procured for Immediate Reserve units, improvements were due primarily to transfer of equipment from the active Army as it received new items.

During 1963 the Army Reserve equipment budget for procurement, maintenance, and transportation was increased to \$15.2 million, almost four times that of the previous year and more in line with the traditionally larger National Guard appropriation.

There were problems as well as progress in the fiscal year. Among those related to the reserve realignment and under study as the year closed were maintenance of the 700,000 paid-drill strength, provision of additional training time, and equipment for Immediate Reserve units.

The Army in fiscal year 1963 clearly enhanced its operational readiness and combat effectiveness through organizational improvements in the departmental staff, major commands, field forces, and reserve components.

IV. Developments in Doctrine and Training

Operational developments during the year and organizational changes within the Army were accompanied by an evolution in doctrine and training. The shifts in emphasis were reflected in the increasing importance attached to the need for mobility and to the counterinsurgency effort. Experiences in the Republic of Vietnam pointed up the need to move men and material quickly by air and over land and water to meet fast-developing situations. More and more time is being devoted in the field and in Army schools to training for special warfare activities, and mobility—especially air mobility—has become an even more vital interest.

Mobility

In recent years the Army has been investigating the use of aircraft to achieve greater mobility. Aircraft can carry out certain Army functions much more effectively than ground vehicles and therefore must supplement ground means traditional and organic to the Army in carrying out its missions. Aircraft can locate the enemy, support the combat soldier, get him out of the mud, and



Figure 3. U.S. Army CH-21 helicopter transporting troops in Vietnam, escorted by a UH-1.

deposit him at the scene of operations in the quickest manner and in the best physical condition possible to perform his mission.

The ROAD division, for example, contains about twice as many aircraft as the division it replaced, permitting a greater use of the air in the forward combat area and providing increased aerial surveillance and logistical support. The newly formed air assault test units are designed to evaluate the concept of tactical air mobility, under which Army units may move and fight from the air, but still possess the first requisite of land combat, the ability to close with and destroy the enemy on the ground. One great tactical advantage which may emerge from this development is the capability of reducing and overcoming such obstacles as water, swamps, jungles, and mountains more easily.

During the fiscal year the Army's inventory of aircraft rose from approximately 5,700 to about 6,000, a net increase of 5 percent. The bulk of the increase was in helicopters.

Army aviators—officer and warrant officer—increased by 506 to a total of 7,294 by the end of the fiscal year. Despite the gains registered in aircraft and aviators, shortages still existed in both areas.

There were several significant developments during the year in Army aviation. On February 4, 1963, Army aircraft in Antarctica made the first successful helicopter landings at the South Pole when three UH-1B helicopters flew there from Mount Weaver in the Queen Maud Range, a distance of 182 miles. When the Army's CV-2 Caribous deployed to Vietnam, they flew 11,000 miles from the continental United States, marking the first self-deployment of Army aircraft to an oversea theater. On February 15, 1963, Company A, 228th Assault Support Battalion, was activated and became the first unit to be equipped with CH-47A (Chinook) helicopters.

Since the role of organic aircraft in the Army was expanding, the Army, at the direction of the Secretary of Defense, in April 1962 appointed the U.S. Army Tactical Mobility Requirements Board (the Howze Board) to determine how the Army's capability to fight ground battles could be improved by the substitution of organic aerial means for organic ground means. The basic assumption made was that regardless of substitutions of one type of means for another *within* Army units, the Navy and Air Force would continue to provide that support to the Army required by current roles and missions. It was further assumed that the Air Force would continue to provide Army units with air superiority, interdiction, tactical air reconnaissance, close air support, and airlift regardless of how the Army organized its combat units. The Howze Board was to seek ways to improve the Army's mobility and flexibility in the five basic functions of ground combat. In order to meet this objective, the board recommended that three new types of units utilizing aircraft to a maximum be incorpo-

rated into the Army's structure—an air assault division, an air transport brigade, and an air cavalry combat brigade. The Army generally concurred in the basic concepts advanced by the Howze Board and by the end of the fiscal year was organizing and training recommended organizations for additional tests and evaluation as well as for further development and refinement of concepts. In addition to unilateral Army tests and evaluation, tests and evaluation on joint aspects of the concept and on alternatives that might be made by the Air Force will be conducted. With the conclusion of the tests and evaluation in fiscal year 1965, recommendations can be made on how many and what types of air mobile units should be incorporated into the force structure.

Although the accent on air mobility tended to obscure efforts to improve ground and water mobility, the Army also sought to develop ground weapons and combat and combat support vehicles with greater cross-country mobility, water-crossing capability, and air transportability. The need to protect personnel in the vehicles under combat conditions, however, has impeded the search for fast, easily transported vehicles. Armored protection increases weight and sacrifices speed and maneuverability. The influence of developments in air transportation, therefore, promises to have a profound effect upon Army ground and water transportation in the days ahead.

Special Warfare Forces

During the fiscal year the Special Warfare Forces reached the programmed goal of approximately 9,000 men, a sixfold increase over the special warfare strength in early 1961.

To meet subversive insurgency and possible hot war requirements, the Army's Special Warfare Program provides for three tiers or echelons of forces. The first includes deployed Special Forces, together with certain augmentation elements that form collectively Special Action Forces, or SAFs. These elements consist for the most part of aviation, engineer, medical, civil affairs, intelligence, psychological warfare, and military police personnel. Numerous mobile training teams have been made available for employment in Europe, Latin America, Asia, and the Middle East. To provide the core units for the SAFs, Special Forces Groups have been increased in number from four to six. The second tier forces include the general purpose Army forces in oversea commands. Area-oriented and counterinsurgency trained, these forces can be committed in whole or in part, or serve as the source for additional training teams and advisors to augment the SAFs. The third tier is the Army forces stationed in the continental United States. Certain of these units are oriented and trained for employment in areas threatened with insurgency.

Throughout the Army training program, counterinsurgency and counter guerrilla training and instruction have increased. All Army

units have conducted counterinsurgency training, and all Army personnel have received instruction on the nature and causes of insurgency as well as on the Army's role in combating it. Some units have also taken a special 6-week course in counter guerrilla tactics and techniques; this program culminates in a field exercise. Plans have been made to broaden participation in counter guerrilla training on an annual basis in order to include all combat units. For administrative and service units, the Army training program features the counter guerrilla aspects of rear area security.



Figure 4. A Special Forces team practices an assault landing in Florida.

From the extensive experience the Army has gained from helping the Republic of Vietnam Army, the U.S. Army Section, MAAG, Vietnam, has begun to produce a series of pamphlets highlighting the lessons learned. The pamphlets have proven to be particularly valuable to Army advisors bound for Vietnam who are students in the Military Assistance Training Advisor (MATA) course at the Special Warfare Center, Fort Bragg, N.C.

The most pressing problem facing the Special Warfare Forces during fiscal year 1963 was that of language training. Although 2,500 were trained in 19 different languages during the year, requirements exceeded the Department of Defense capabilities for producing linguists. Language facilities were expanded and training was intensified in an effort to improve the situation. By the end of the fiscal year, construction of a language facility at the Special Warfare Center was nearing completion.

Army School Programs

The accent on an adequate supply of well-educated, well-trained personnel to meet the demands of modern warfare permeated the Army school program and its subsidiary activities throughout the fiscal year. Around the world, Army schools felt the impact of the shifts of emphasis in doctrine and training.

Army service schools continued to stress training to achieve an understanding of insurgency, counterinsurgency, and psychological warfare, together with methods and techniques of responding to the many and varied situations that might arise in these areas. In addition, foreign intelligence officers have been trained in U.S. Army intelligence schools to improve their professional competence and ability to cope with domestic and foreign intelligence problems. The training of U.S. and foreign military personnel together in Army service schools not only has brought about valuable associations between the students but also has fostered the spread of American training doctrine abroad.

In the continental United States during the past year, comprehensive studies of school courses have resulted in consolidation of supply officer courses and elimination of officer familiarization courses. New courses have been added to keep pace with the increasing requirements for personnel who are school-trained in the operation and maintenance of improved and highly complex weapons systems. To stimulate reenlistments of trained personnel, progressive technical training has been offered to a number of selected enlisted personnel.

During the fiscal year, 155,000 personnel completed Army resident courses in 43 Army service schools and colleges. In addition, civilian institutions and industrial organizations have trained Army personnel in scientific, academic, and technical fields when comparable essential training could not be provided by the Army. During the past year 2,220 have completed training in civilian academic institutions and through industry-sponsored courses.

The Army has continued its diversified management training program. General management training was offered to selected personnel at the Army War College, the Command and General Staff College, and branch and service schools, as well as at the Management School at Fort Belvoir, Va., where instruction was given to 362 officers and 104 civilians during the year. Functional management training was offered at the Army Finance School at Fort Benjamin Harrison, Ind., with resident courses in comptrollership and financial management subjects for military and civilian personnel. The Army Comptrollership School at Syracuse University, N.Y., a part of the Army's civil schooling program, provided graduate-level training tailored to Army practices and requirements, with 27 officers and 6 civilian employees enrolled in the program.

The most productive source of new officers for the active Army and reserve components has been the ROTC program. There were 232 units at 247 colleges in the Senior Division, 40 units at 40 institutions in the Military Schools Division, and 90 units at 225 secondary schools in the Junior Division. Eighty-six institutions in the Senior Division conducted Army ROTC flight training and 2,251 students completed the program. The National Defense Cadet Corps program included 74 units at 109 schools with an approximate enrollment of 24,500 cadets.

During the fiscal year, 11,600 officers were commissioned from the senior ROTC program; 1,100 were given distinguished military graduate appointments as regular Army officers and will be called to active duty in fiscal year 1964; 10,500 received reserve commissions and will be called to active duty for a 2-year period.

After a thorough review of the ROTC Senior Division Program, the Army recommended to the Secretary of Defense that colleges and universities be given an option of adopting either a 2-year or a 4-year program. The 2-year program would provide instruction on campus during the junior and senior years with the usual 6-week summer camp. An additional summer camp would be added to this program between the sophomore and junior year to cover the military instruction given in the freshman and sophomore year of the 4-year course. A limited ROTC scholarship program was recommended as well as increases in on-campus allowances and summer camp pay.

Promotion of Rifle Practice

During 1963 the Civilian Marksmanship Program continued to grow steadily and involved 374,045 members organized into 5,444 rifle and pistol clubs enrolled under the Director of Civilian Marksmanship. As an incentive to training, the National Board for the Promotion of Rifle Practice (NBPRP) sponsored Rifle and Pistol Matches, which were conducted in conjunction with 30 National Rifle Association Regional Matches. The Under Secretary of the Army is president of the NBPRP.

The Small Arms Firing Schools, with a course of instruction prescribed by the NBPRP, were again conducted by the Army Infantry School as a required part of the annual National Matches. The schools this year were attended by 6,638 students, an increase of 712 over fiscal 1962.

A noteworthy action was the establishment by the NBPRP of the U.S. Distinguished International Shooter Badge to provide recognition for outstanding individual and team accomplishment of U.S. marksmen in international competitions. Twenty-six of these badges were awarded to U.S. team members for outstanding achievements at

the International Shooting Union Matches conducted in Cairo, Egypt, in October 1962. Sixteen of the badges were also won by U.S. team members in the Pan American Games held in Sao Paulo, Brazil, in April 1963.

The NBPRP established the "Golden Eagle Trophy," to be awarded to the winning junior competitor firing in the National Trophy Individual Match, and bronze badges depicting the trophy, to be awarded to the 10 high juniors in the match. The first presentation is scheduled to be made at the 1963 National Matches.

To increase junior participation in this program, the NBPRP approved the free issue of ammunition to be used by the Boy Scouts of America in a marksmanship training program for Explorer Scouts at their annual summer encampment at Philmont Ranch in New Mexico. This is an experimental program looking toward the feasibility of more marksmanship training at other Boy Scout summer encampments.

The training of civilians in the use of military small arms with which they would be equipped in the event of a callup to military service has provided the Nation with more reserve strength. The modern Minuteman's familiarity with weapons of defense could prove to be of great importance under certain emergency conditions.

V. The Ultimate Weapon

It has frequently been pointed out that, despite technological advances and the increasing complexity of the tools of war, man remains the ultimate weapon. The soldier of 1963 proved his worth to the Nation in notable service at home and abroad, from a combat situation in Vietnam, through guarding an uneasy peace in Berlin, to supporting the civil authorities in domestic disturbances. During the Cuban crisis the American soldier demonstrated his readiness and ability to give the Nation wide flexibility in its exercise of power. All over the world the soldier has contributed skill and force to the expanding civic action program in support of underdeveloped nations and peoples. Supporting him in his domestic and worldwide activities is the Army civilian work force, reduced in strength during fiscal 1963 but compensating for that reduction through growing productivity and effectiveness.

Military Personnel

The Berlin crisis necessitated substantial increases in Selective Service calls from September 1961 through January 1962. To sustain trained manpower levels through subsequent biennial selectee release periods, the Army was authorized a temporary increase in strength from 960,000 to 980,000 for fiscal year 1963 and began training early the replacements that would be needed to offset losses. The temporary increase was designed to insure a relatively stable trained personnel base by mid-1965.

The actual strength of the Army, excluding reimbursables, on June 30, 1963, was 975,155, broken down as follows:

<i>Category</i>	<i>Strength</i>
Enlisted Personnel.....	865,540
Officers (Male and WAC).....	94,677
Warrant Officers.....	9,677
Nurses and Medical Specialists (Officers).....	3,415
Cadets.....	1,846

The ratio of officers to enlisted men was about 1 to 8.

The Army's operating forces (see fig. 5) comprised 62.9 percent of total strength, in keeping with pressing requirements for a high level in this category.

As indicated in the following table, officer accessions to the Army in 1963 were about 17,000. Of the total, approximately 2,600 were

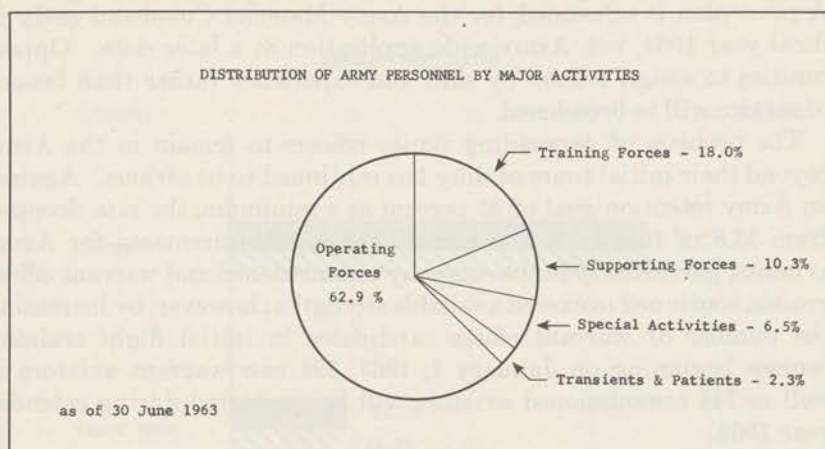


Figure 5.

regulars: 498 were obtained through the Service Academy and Appointment categories listed in the following table; about 727 were from the ROTC Distinguished Military Graduate Program; and about 1,000 were from the Active Duty Integration Program.

PROCUREMENT OF OFFICERS BY SOURCE IN FISCAL YEAR 1963

Source	Gains
U.S. Service Academies.....	465
Reserve Officer Training Corps.....	10, 578
Officer Candidate School.....	781
Professional (appointments in JAGC, MSC, WAC, CHAP).....	764
Medical Corps, Dental Corps, Veterinary Corps.....	1, 778
Voluntary Active Duty.....	906
Regular Army Appointments (from civil life).....	33
Miscellaneous*.....	302
Nurses and Medical Specialists.....	374
Warrant Officers.....	1, 086
Total.....	17, 067

*Inter-Service transfers, returned from disabled list. Includes 144 Cuban exiles appointed in AUS.

Shortages of officers by branch, grade, and military occupational specialty proved to be a significant factor in personnel management actions during fiscal year 1963. Continued improvement in officer utilization is expected to overcome this in part during the coming year. The Army reorganization eliminated to a large extent the restrictions imposed by the former assignment jurisdictions of the various arms and services. Plans to reduce the number of officer positions designated as branch material will further broaden assignment possibilities.

A pilot plan is scheduled for the Army Materiel Command early in fiscal year 1964, with Army-wide application at a later date. Opportunities to assign officers by skill and experience rather than branch of service will be broadened.

The problem of persuading junior officers to remain in the Army beyond their initial tours of duty has continued to be serious. Against an Army retention goal of 35 percent as a minimum, the rate dropped from 33.8 in 1962 to 33.1 percent in 1963. Requirements for Army aviators, particularly in the company commissioned and warrant officer grades, continued to exceed available strengths; however, by increasing the number of warrant officer candidates in initial flight training courses beginning on January 1, 1963, 598 new warrant aviators as well as 744 commissioned aviators will be graduated during calendar year 1964.

Beginning in fiscal year 1964, all consideration for promotions of reserve component officers above the grade of captain will be centralized in the Department of the Army headquarters in order to reduce the present overage in certain grades in the active reserve and to provide more effective control of grade levels in the future. The centralization of field grade promotions will also provide greater uniformity in application of selection criteria and will improve the administration of the promotion system for reserve officers.

In the area of enlisted procurement and retention, no-prior-service enlistments declined to 111,700, a drop of 13.7 percent from 1962. A decrease of about 10,000 (68 percent) in draftee reenlistments during fiscal year 1963 was not a true indicator; some 9,000 AUS personnel who normally would have reenlisted before expiration of their terms of service during fiscal 1963 were not eligible because of the October 1962 policy change requiring completion of the full 2-year obligated tour before reenlistment. Career and first-term reenlistments dropped 20,000; however, they reflected a gain of about one percentage point because fewer individuals qualified as eligible for reenlistment. (See fig. 6.)

This drop in the number of reenlistments is an indication of the anticipated effect of personnel policies carried out during fiscal year 1962, and directed toward the retention of quality-type personnel and the elimination of substandard or marginally effective personnel. In addition, it reflects the greater number of voluntary retirements from the enlisted ranks of personnel who have attained the 20-year-service eligibility for retirement.

The release in August 1962 of 99,000 involuntarily called Reserve and National Guard personnel and the 1 percent regular Army reenlistment rate increase raised the regular content of the active Army by approximately 7 percent. (See fig. 6.)

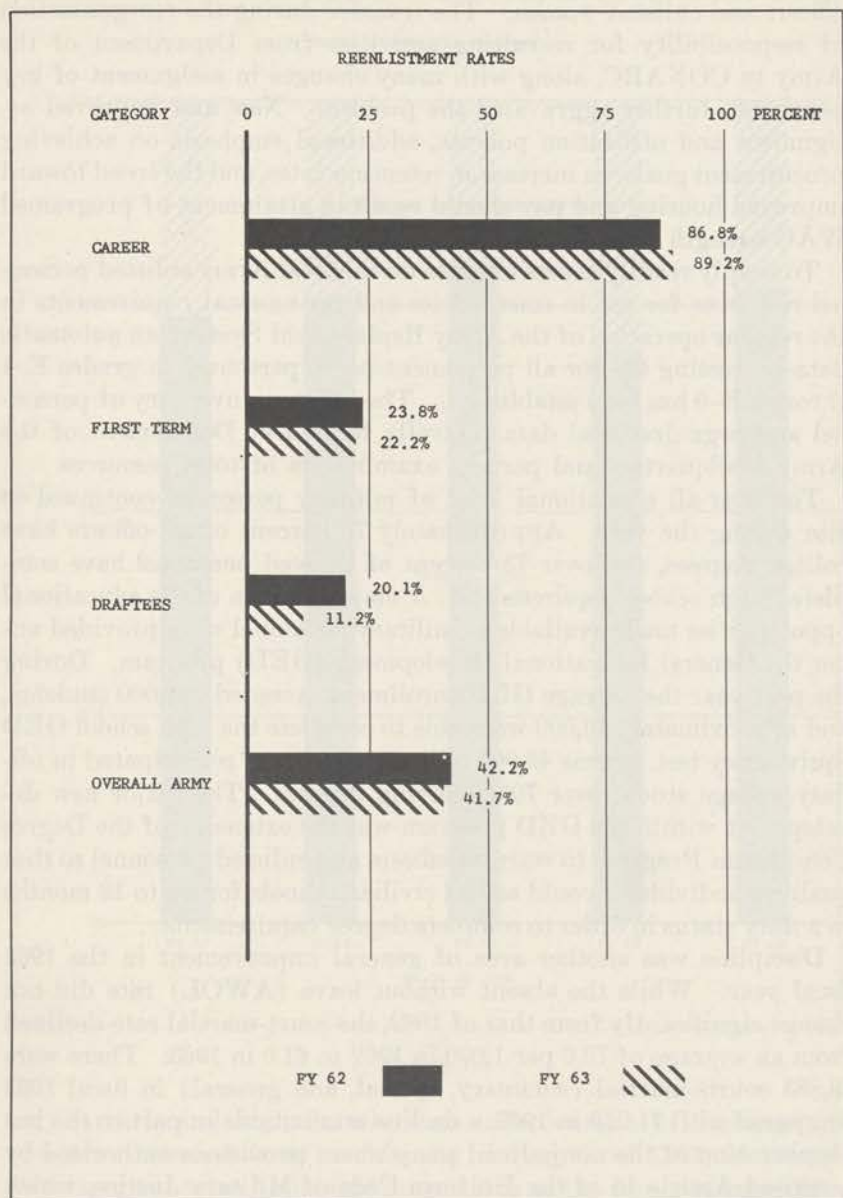


Figure 6.

The Women's Army Corps (WAC) experienced a steady decline in officer and enlisted strength in fiscal 1963. The decrease may be partially attributed to voluntary and mandatory retirements as the WAC completed its first 20 years. Retiring in the fiscal year were 65 officers, 5 warrant officers, and 92 enlisted women. An additional factor in the strength decrease was a failure to reach procurement goals for both

officers and enlisted women. The transfer during the reorganization of responsibility for recruiting activities from Department of the Army to CONARC, along with many changes in assignment of key personnel, further aggravated the problem. New and improved assignment and utilization policies, additional emphasis on achieving procurement goals, an increase in retention rates, and the trend toward improved housing and pay should result in attainment of programmed WAC strength in fiscal 1964.

To supply readily accessible data on the total Army enlisted personnel resources for use in emergencies and for unusual requirements in the regular operation of the Army Replacement System, an automatic data-processing file for all permanent-party personnel in grades E-1 through E-9 has been established. The file is an inventory of personnel and organizational data centrally located at Department of the Army headquarters and permits examination of total resources.

The over-all educational level of military personnel continued to rise during the year. Approximately 70 percent of all officers have college degrees, and over 73 percent of enlisted personnel have completed high school requirements. A major portion of the educational opportunities made available to military personnel were provided under the General Educational Development (GED) program. During the past year the average GED enrollment exceeded 133,000 students, and approximately 40,000 were able to complete the high school GED equivalency test. Some 45,000 military personnel participated in off-duty college study, over 700 receiving degrees. The major new development within the GED program was the extension of the Degree Completion Program to warrant officers and enlisted personnel so that qualified individuals could attend civilian schools for up to 12 months in a duty status in order to complete degree requirements.

Discipline was another area of general improvement in the 1963 fiscal year. While the absent without leave (AWOL) rate did not change significantly from that of 1962, the court-martial rate declined from an average of 70.0 per 1,000 in 1962 to 61.0 in 1963. There were 59,883 courts-martial (summary, special, and general) in fiscal 1963 compared with 71,250 in 1962, a decline attributable in part to the implementation of the nonjudicial punishment provisions authorized by a revised Article 15 of the Uniform Code of Military Justice, which went into effect in February 1963.

The prisoners-in-confinement rate remained at 0.7 per 1,000, near the low rate reached in 1960 following a steady drop from a high experienced in 1955. In that year the Army operated 5 disciplinary barracks and 72 stockades; as of the end of fiscal year 1963 there were 1 barracks and 51 stockades in operation. The rate of all Army prisoners worldwide decreased from a high of 12.9 per 1,000 strength in 1955 to 4.6 as of June 30, 1963. Of those Army prisoners in discipli-

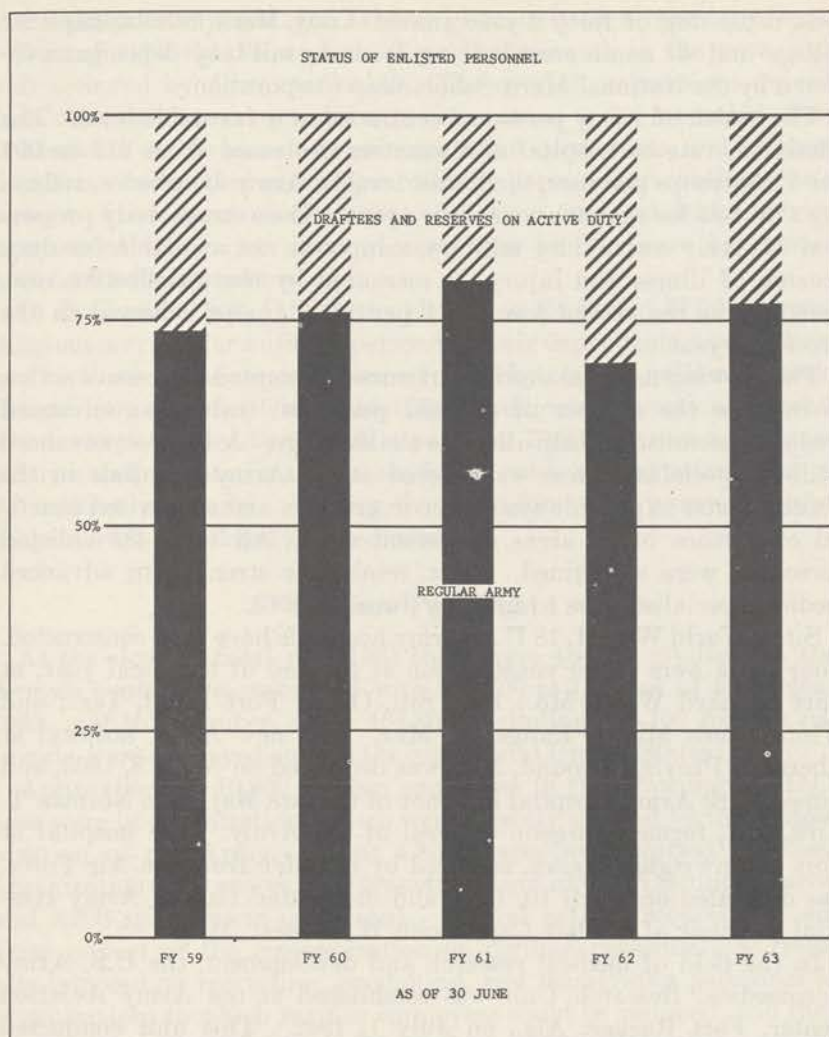


Figure 7.

nary barracks and stockades who were under sentence of discharge and who were released from confinement during fiscal 1963, 26 percent were returned to an honorable duty status as the result of rehabilitation efforts and suspended sentences.

To maintain high morale the Army devoted considerable attention during the year to such matters as housing, religious services, commissaries, post exchanges, and dependent care. Major commanders were allocated \$36.9 million in nonappropriated welfare funds for off-duty morale, welfare, and recreational programs. A plan was also approved authorizing the use of nonappropriated funds, commencing in 1964, for an Educational Assistance Program for Military Depend-

ents, consisting of forty 4-year annual Army Merit Scholarships for college and 40 noninterest-bearing loans to military dependents selected by the National Merit Scholarship Corporation.

The health of Army personnel continued at a favorable level. The admission rate to hospital and quarters decreased from 311 to 298 per 1,000 troops per year, the lowest level in Army experience, reflecting a decline for the fifth consecutive year. The average daily proportion of Army active duty military manpower not available for duty because of illness and injury, as measured by the noneffective rate, remained at the record low of 11 per 1,000 troops achieved in the preceding year.

The growing national shortage of nurses prompted aggressive action to increase the number of enlisted personnel trained as advanced medical specialists to help alleviate the shortage. A 40-week advanced medical specialist course was offered at six Army hospitals in the United States to provide systematic instruction and supervised practical experience in all areas of patient care. All told, 483 enlisted personnel were so trained. As a result, the strength in advanced medical specialists rose to 1,587 by June 30, 1963.

Since World War II, 18 U.S. Army hospitals have been constructed. Four more were under construction at the end of the fiscal year, at Fort Leonard Wood, Mo.; Fort Sill, Okla.; Fort Hood, Tex.; and White Sands Missile Range, N. Mex. The new Army hospital at Aberdeen Proving Ground, Md., was dedicated on April 8, 1963, and named Kirk Army Hospital in honor of the late Maj. Gen. Norman T. Kirk, MC, former Surgeon General of the Army. The hospital at Fort Wainwright, Alaska, acquired by transfer from the Air Force, was dedicated on April 10, 1963, and designated Bassett Army Hospital in honor of the late Capt. John W. Bassett, MC.

In the field of medical research and development, the U.S. Army Aeromedical Research Unit was established at the Army Aviation Center, Fort Rucker, Ala., on July 1, 1962. This unit conducted research on medical personnel problems in Army aviation with emphasis on psychological and physiological fitness of air crew members, their training, and equipment. The unit started its activities by becoming the central Army reference center on literature on aeromedical problems. Its collection of information, together with the medical studies to be conducted on rotary and small fixed-wing aircraft, will permit the Army to provide its aviators better medical and technical support.

In the area of preventive medicine, oral attenuated poliomyelitis vaccine (Sabin) was adopted as the standard poliomyelitis vaccine in lieu of the inactivated vaccine (Salk). All three of the attenuated types of vaccine were provided to personnel going overseas regardless of age and to all under 31 years of age serving in the United States.

For those over 30 years, type III was given only on a voluntary basis.

During 1963 the Dependents Care Program, as in the past, was well accepted by Army personnel. The over-all impressions gained from observation, surveys, and experience attest to the favorable effect of Medicare on the morale of principals and dependents, and indicate that it is a factor that encourages military personnel to continue their careers. Limitations on dependent outpatient care and dental service represented the major areas of complaint on Medicare by service personnel and dependents.

In fiscal year 1963, U.S. Army chaplains conducted 371,000 group religious services for military personnel, their dependents, and authorized civilians. The services were attended by over 20 million persons. In addition, the chaplains held 175,000 religious education sessions, which were attended by 6.3 millions. Over 79,000 character guidance lectures and orientations were conducted with a total attendance of 8.7 million personnel. During the year four new permanent-type chapels were completed and dedicated.

Civilian Personnel

At the close of fiscal year 1963 there were 484,841 civilians in the Army's work force, compared with 505,700 at the end of fiscal year 1962. Of this number, about 165,800, including 146,100 foreign nationals, were employed outside the continental United States.

Approximately 10,800 civilian employees in the Washington, D.C. area were in organizations which were directly affected by the reorganization of the Army. About 4,300 spaces were shifted into new organizations, 800 spaces were transferred out of the Washington area, and 5,700 spaces were unaffected. Several actions reduced the adverse impact of the reorganization on civilian personnel: A freeze was imposed on recruiting, promoting, and reassigning personnel in organizations to which surplus employees could be assigned, and then the surplus personnel were permitted to transfer into the organizations. Army-wide career referral systems proved to be of considerable value in staffing new key positions created by the reorganization. Adjustment to the new organizational structure has been achieved with facility and few complaints.

Added emphasis was placed on equal employment opportunity in accordance with Executive Order 10925. As a part of this emphasis, headquarters teams are giving special attention to equal employment opportunity during regular surveys of civilian personnel management and are placing continuing emphasis on the Army's long-standing policy of equal treatment for all employees. In addition, a survey was made to discover employees whose capabilities exceeded those required by their current assignments and to open promotional opportunities to them.

A new Federal policy on labor-management relations, stemming from Executive Order 10988, was placed in effect on July 1, 1962. Since that date the number of national employee organizations representing Army civilian employees has increased from 14 to 20 and the number of union locals has risen from 250 to over 350. Total Army employee membership has increased from about 40,000 to over 50,000, about 15 percent of the civilian work force in the continental United States. Of the 125 bargaining units organized at the local level, 75 have formal and 50 have exclusive recognition. The Department also granted formal recognition at the national level to the American Federation of Government Employees, the National Federation of Federal Employees, and the International Association of Machinists.

Among the developmental programs, 13 Secretary of the Army Research and Study Fellowships were awarded in 1963 to promote the discovery, development, and increased use of the creative talent in Army career civilian employees. Six Army civilian employees were selected to receive a year of graduate education under a Ford Foundation grant administered by the National Institute of Public Affairs in a program designed to train public service executives. As a part of the Army's supervisory development program, a program of workshops was instituted for military and civilian managers who have supervisors reporting to them and who themselves report to higher level managers.

Three new occupational career programs became operational during fiscal year 1963, bringing the total employee coverage to over 48,000. In addition, the development of six more programs was undertaken, covering 28,500 more employees.

While there were some problems at the close of the fiscal year, the Army's personnel situation—in strength, discipline, education, health, morale, and civilian support—was sound.

VI. The Sinews of War

Without adequate support, even the best personnel would be of little value in a modern army. The provision of funds, and the supplies, weapons, equipment, facilities, and services that those funds purchase, are the sinews of war. Huge sums are involved in the pay, food, clothing, equipment, housing, and transportation of the Army's soldiers. Facilities and equipment have to be maintained in a combat-ready status. In the event of casualties, medical care has to be provided. The management of Army funds and the provision of logistical support are highly important functions that covered broad and diverse areas of Army activity during fiscal year 1963.

Management

The Army increased its use of scientific management tools to carry out its missions and tasks. This use included the application of new management techniques in the decision-making processes which are concerned with insuring the highest operational readiness within available resources. Refinements in the over-all Army organization, employment of revolutionary new computers, improved administration of funds, and planned and systematic management procedures at all levels are indicative of the progress made. Since improved management is a command responsibility, efforts have been made to impress all commanders and supervisors—whether at the staff, tactical, or nontactical command level—that they are directly concerned in the process. Attention has also been devoted to the goal of improved communications to facilitate more rapid decision-making at the top levels of management in the Army.

Since the DOD program structure relating Army resources to Army missions required a new system for presenting information to Army leaders, the Command Analysis concept was developed early in the fiscal year. This concept provides for the analysis of major Army commands in detail to determine their ability to perform their missions within the resources available. Three commands—U.S. Army, Alaska; U.S. Army Forces, Southern Command; and U.S. Army Air Defense Command—were analyzed during the period and the remaining six major commands will be subjected to the same analysis during the next fiscal year. Thereafter, all nine commands will be reviewed at least once a year.

A new informational medium for the Secretary of the Army was also initiated during the year. The Army Status Report was conceived as a regular, frequent, and brief summary of Army affairs to single out problems that required immediate Secretarial attention. The Army Status Report, Command Analysis, and the quarterly review of Army programs combine to give the Army's principal civilian and military leaders a broad range of information on which to act promptly and effectively.

To develop greater compatibility between the Defense program structure and the Army appropriation and budget program structure, important innovations have been made in the planning-programing-budget cycles. The two systems are compatible in that both reflect actions to be taken and the expected costs of the actions; however, their structures are different. DOD program structure concerns itself with the various types of combat units and other major elements of the Army by geographic location, while the Army structure is based upon the budget and reflects the various actions whereby the Army equips, staffs, operates, and maintains various types of combat units and supporting elements. The Army budget estimate for fiscal year 1964 was developed on the basis of the approved Army portion of the Defense Five-Year Force Structure and Financial Program.

Wherever possible, the Army has sought to standardize data-processing systems and machine programs when the procedures and systems are common to two or more locations. By doing this, the responsiveness to changes in requirements during either peace or war can be increased. Although the development of machine programs (the instructions under which computers process data) is expensive, the use of centrally controlled standard systems and programs at several installations significantly reduces costs. Thus, the Army plans to have the nine supply depots of the Supply and Maintenance Command use standard machine programs, covering general financial accounting, financial inventory accounting, stock fund accounting, and integrated cost accounting. In August 1962 the Department of the Army and the Continental Army Command jointly began to develop systems and automation that would be completed by July 1, 1964.

The need to speed up responsiveness to requirements generated by modern business techniques and by higher authority and to manage resources more efficiently has led to the further development of the AUTOPROBE automatic data-processing system during the fiscal year. AUTOPROBE was designed to provide an integrated and automatic system that would support the total information requirements of the Army in planning, programing, budgeting, resource management, and command and control. AUTOPROBE includes a "data bank" concept, which involves the multiple usage of single files of command data. This single system of basic files will serve all elements

of the Army staff, the Chief of Staff, and the Secretary of the Army in support of their respective responsibilities. Implementation of the AUTOPROBE concept began in February 1962. The initial operational capability reached in mid-1962 continued to expand throughout fiscal year 1963 in the DOD programing/Army Five-Year Force Structure and Financial Program areas. Production will expand into other areas and the system will become more effective as tasks and subprojects are completed. Although maintenance and refinement of the system is to be on a continuing basis, the major effort is scheduled for completion in July 1964.

Another new management device that has assumed increasing importance during the past year is the Program Evaluation and Review Technique, usually referred to as PERT. Designed to improve management planning and control, PERT is used for planning and scheduling events and activities of specific projects; reviewing progress against schedules; simulating the effects of proposed decisions before they are made; identifying actions needed to adjust plans and schedules in order to complete work on time; and preventing cost overruns. A total of 208 different applications of the technique have been made in such areas as administration, including office activities; procurement and contract administration; budget; training; research and development; construction; and manufacturing- and industrial-type activities. It is expected that the PERT technique will be used even more extensively in the future.

The increasing requirements for rapid and informal response to situations were reflected during the year in the mounting employment of computers and data-processing units. At the end of the fiscal year, the Army operated 207 electronic digital computers at 116 locations. In addition, 300 data-processing activities operated under punched-card machine methods. Total costs for the year for personnel, supplies, and equipment were \$133 million, an increase of \$17 million over fiscal year 1962. Costs on the order of \$154 million were predicted for fiscal year 1964 as a normal concomitant to increased military preparedness.

Budget and Funds

The Army received \$11.8 billion in new obligational authority for the fiscal year and obligations for the year totaled \$13.6 billion. (See following tables.) Net expenditures were \$11.5 billion, which was nearly \$100 million more than in fiscal year 1962, mainly because of the high rate of procurement obligations during that year.

In the fall of 1962, the Army's fiscal year 1964 budget for new obligational authority, as submitted to OSD, amounted to \$16.4 billion. Following joint hearings by OSD-BOB and an extensive review by

DEPARTMENT OF THE ARMY
CHRONOLOGICAL SUMMARY OF THE BUDGET ESTIMATES, FY 1963
NEW OBLIGATIONAL AUTHORITY ¹

(In Thousands of Dollars)

Appropriation title	As submitted to OSD	As submitted to BOB	President's budget	Revised President's budget	Appropriated PL 87-577 PL 87-684
Military Personnel, Army-----	3, 931, 118	² 3, 781, 000	³ 3, 733, 000	³ 3, 733, 000	³ 3, 643, 300
Reserve Personnel, Army-----	245, 652	221, 600	221, 600	214, 700	239, 200
National Guard Personnel, Army-----	265, 793	235, 000	231, 600	238, 500	261, 800
Operation and Maintenance, Army-----	3, 906, 848	3, 401, 000	3, 402, 000	3, 402, 000	3, 408, 345
Operation and Maintenance, Army National Guard-----	181, 600	171, 000	174, 400	174, 400	174, 400
National Board for the Promotion of Rifle Practice-----	500	500	500	500	622
Operation and Maintenance, Alaska Communication System ⁴ -----	6, 899	6, 900	6, 900	6, 900	6, 900
Procurement of Equipment and Missiles, Army-----	2, 782, 300	2, 855, 000	2, 555, 000	2, 555, 000	2, 520, 000
Research, Development, Test and Evaluation, Army-----	1, 681, 490	1, 348, 000	1, 329, 000	1, 329, 000	1, 319, 500
Total (Excluding Military Construction)-----	13, 002, 200	12, 020, 000	11, 654, 000	11, 654, 000	11, 574, 067
Military Construction, Army-----	282, 700	178, 000	177, 000	234, 422	181, 272
Military Construction, Army Reserve-----	16, 135	8, 000	8, 000	8, 000	8, 000
Military Construction, Army National Guard-----	24, 333	7, 000	7, 000	7, 000	7, 000
Total Military Construction-----	323, 168	193, 000	192, 000	249, 422	196, 272
Total Military Functions-----	13, 325, 368	12, 213, 000	11, 846, 000	11, 903, 422	11, 770, 339

¹ Excludes supplemental requests and appropriations.

² In addition, \$300 million transferred from Army Stock Fund.

³ In addition, \$350 million transferred from Army and Defense Stock Funds.

⁴ This appropriation transferred to Air Force.

TOTAL OBLIGATIONS—ARMY

(In Millions of Dollars)

	Fiscal year		
	1962 (Actual)	1963 (Actual)	1964 President's budget
Military Personnel, Army-----	4,231.1	4,115.1	4,204.3
Reserve Personnel, Army-----	201.0	189.7	211.1
National Guard Personnel, Army-----	209.0	218.9	241.4
Operation and Maintenance, Army-----	4,502.9	4,086.0	4,024.9
Operation and Maintenance, Army National Guard-----	164.5	175.4	177.1
Promotion of Rifle Practice-----	.5	.6	.5
Procurement of Equipment and Missiles, Army-----	3,188.2	3,090.6	4,060.0
Research, Development, Test and Evaluation, Army-----	1,384.8	1,297.3	1,514.2
Military Construction, Army ¹ -----	297.1	425.9	499.5
Military Construction, Army Reserve-----	14.5	7.9	7.5
Military Construction, Army National Guard-----	16.9	12.3	7.0
Total General Appropriations--	³ 14,210.6	² 13,619.8	14,947.5

¹ Includes reimbursables.² Figures do not agree due to rounding.³ Excludes Operation and Maintenance, Alaska Communication System, subsequently transferred to Air Force.

the Secretary of Defense, this budget was reduced to \$12.8 billion. Congress approved a total of \$12.3 billion.

As a result of Presidential authorization through the Secretary of Defense, Army appropriations for Military Personnel and for Operation and Maintenance in connection with the callup of reserve forces during the Berlin crisis in 1961-62 were exempted from the apportionment process. The Secretary of Defense, however, continued to control both of these appropriations by quarterly obligation limitations.

The Research, Development, Test, and Evaluation (RDT&E) appropriation was subjected, for the first time, to a statutory fund control below the appropriation level when OSD put into effect new budget activity and subactivity structures on July 1, 1962. The new subactivity structure was compatible with the program elements of the Defense Five-Year Force Structure and Financial Plan and was used by the Office of the Secretary of Defense to identify items approved for obligation or deferred for financing.

In consonance with the Department of Defense program system established at the beginning of the fiscal year, the Army had devel-

oped a concept that provides for the full integration of the accounting system for program and project management with the accounting system for budgetary and fiscal administration. The Integrated Program/Appropriation Accounting and Reporting System provides, under a "total information concept," all quantitative and financial data required for management and control purposes. Establishment of this system materially will improve the efficiency of the Army in accumulating, maintaining, and utilizing data by simplifying reporting and assuring accuracy and compatibility of the same data presented in diverse forms. The system will be applied first to the RDT&E and to Procurement of Missiles and Equipment (PEMA) appropriations.

The Army received authority during the year to extend stock fund operations to the installation level for financing inventories of operating supplies. A program has been established within the Army for maximum use of such financing. When this program is put into full effect, the operating appropriations will finance only the supplies consumed in operations during the year. The stock funds will absorb the requirement for financing unused inventories and undelivered orders.

To meet requirements for accrued accounting in the Military Personnel appropriation, the Army has developed a new system for handling accrued entitlements for pay and allowances. Planned for use in fiscal year 1964, the new system will extract the accrued entitlements from each individual's military pay account on a monthly basis and record them as obligations against the appropriation.

The Army continued to make all feasible reductions in overseas expenditures to improve the U.S. balance in its international payments. Overseas commands carried out vigorous programs to encourage personnel to curtail expenditures on local economies and increase personal savings. Procurement was diverted from foreign to U.S. sources whenever practicable. Deployments and logistic support functions were reviewed with the objective of reducing expenditures without comprising military requirements. Strenuous efforts were made to promote further sales of U.S. weapons and materiel to allies and, through cooperative logistic arrangements, to expand common use of facilities.

At home, the Army maintained its program of independent and objective appraisal of the management of its financial resources, including audits of contractors bidding for or performing under contracts issued by the military departments, and audits of military establishments.

The Army's annual audit budget, exclusive of military personnel salaries, was approximately \$18.5 million. Savings realized through

Army audits of contractors alone during the report period amounted to \$235 million.

The application of management audits, aimed at deterring excessive costs instead of questioning them after they had been incurred, was extended to additional major continuity contractors. By reviewing contractors' price proposals before contracts are awarded, the Army has sought to establish fair and reasonable contract prices that could be negotiated by procurement officials and contractors. In the area of costs claimed by contractors furnishing goods or service covered by existing contracts, critical audit examinations were made to ascertain whether the costs were proper charges against Government contracts.

The Army also serviced over 275 installations and activities in vertical, lateral, functional, and installation audits. Vertical audits encompass all activities of an entire major command or program of the Army. They consist of concurrent audits of selected transactions at various Army levels dealing with user requirements, budgeting, funding, procurement or manufacture, shipment, receipt, storage, issue, and end use. Lateral audits are concurrent examinations of the financial aspects of an Army-wide function or operation that crossed command lines. They give senior commanders and staffs a composite picture of how the function is being performed Army-wide as independently observed and evaluated. The functional audit permits the evaluation of a particular function throughout an entire command, from the headquarters to the lowest operating level. Installation audits cover all activities within a military installation or activity that has financial implications. The product of these audits—the audit report—furnishes a commander with an appraisal of the adequacy of the financial management of his installation.

Procurement

During fiscal year 1963 the Army was provided funds to procure \$2.6 billion in new equipment and missiles. This was slightly more than the amount allocated for 1962 and permitted the Army to make progress in its effort to attain a balanced inventory of modern equipment. To bolster both the atomic and the nonatomic combat capabilities of the Army, the procurement program called for: M-60A1 tanks to improve the range and firepower of the armored forces; the DAVY CROCKETT system to increase the firepower of the combat infantry units with close atomic support; conventional, atomic, chemical, and antipersonnel munitions for further improving the combat capability of tactical forces; heavy and light self-propelled mortars and howitzers to give combat forces greater firepower and range; and surface-to-air and surface-to-surface missiles to support the Army's

air defense mission and provide tactical combat units with an effective atomic and nonatomic missile delivery capability. The Army's combat power and mobility was also enhanced by continuing the accelerated procurement of modern combat and support vehicles such as aluminum armored personnel and reconnaissance carriers and new tank recovery vehicles. Procurement of aircraft increased from 578 units in fiscal year 1962 to 850 units in fiscal year 1963, reflecting the emphasis on aerial mobility. The aircraft procured were principally in Caribou, Mohawk, Chinook, Iroquois, and light observation helicopters. The program for communications and electronics equipment was increased by about \$100 million over fiscal year 1962. This expansion was designed to provide the Army with reliable, light, rugged, and mobile equipment to complement the high degree of mobility and dispersion dictated by modern weapons and warfare. In addition, the Army greatly increased the procurement of worldwide strategic electronics and communications command and control systems equipment, and cryptographic and countermeasure equipment and devices.

Army agencies awarded small business concerns prime contracts in fiscal year 1963 totaling \$1.2 billion representing 20.8 percent of the \$5.7 billion total of all business awards. This level of performance in the Army Small Business Program was achieved despite the fact that many procurement programs readily available to small business were transferred to the Defense Supply Agency, and several major Army contractors previously identified as small business were excluded because they had grown beyond the definition of small business.



Figure 8. Chinook helicopter taking in troops.

Production deliveries of materiel for the Army and its customers were valued at \$2.8 billion during fiscal year 1963, an increase of \$696 million over 1962. During fiscal year 1963, production deliveries began on four new models of the self-propelled howitzer; the LARC-V amphibious cargo vehicle, which has twice the carrying capacity of the World War II DUKW; and the UH-1D helicopter (Iroquois), which provides increased helicopter capability. Several ammunition items also came into production during fiscal year 1963, including the M-371 90-mm. HEAT round, designed for the shoulder-fired anti-tank/assault recoilless M-67 rifle, capable of improved armor penetration, and with an almost doubled maximum tactical range. In the electronics and communications area first deliveries were made on the AN/GRC-50 radio relay set, one of a new family of equipment that permits operation of multichannel trunking systems over wide portions of the radio frequency spectrum; and on the new transistorized man-pack AN/PRC-25 radio set, which provides a greater capability and requires far fewer skilled maintenance personnel than the three sets it is replacing.

Army Cost Reduction Program

At the beginning of fiscal year 1963, the Secretary of Defense launched the formal Defense Five-year Cost Reduction Program that sought to reduce procurement and logistics costs through improved management practices. At the end of the fiscal year the Army's Cost Reduction Program encompassed 25 areas. Savings in these areas were achieved in three ways—buying only what was needed, buying at the lowest sound price, and reducing operating costs.

Annual dollar goals were established in fiscal year 1963 for most of the cost reduction areas, and special effort was made to provide detailed orientation on the program to all Army personnel on a global basis. As an indication of Army response to the program, the overall cost reductions of \$678 million reported at the end of the fiscal year exceeded the annual goal of \$459 million by 47 percent.

The objective of "buying only what was needed" was being attained by improving requirements determinations, making better use of excess inventories, and eliminating "gold-plated"—nice-to-have-but-not-essential—features in equipment. Through a program of value-engineering, the Army reduced the unit cost of many items. For example, on the air vane for the PERSHING missile, an aluminum casting with simplified fittings was substituted for a foam-filled plastic skin with special fittings, cutting the unit cost of the air vane from \$1,512 to \$463, and saving \$1,140,000 on current production.

The Secretary of Defense's approval of logistics guidance, using the P-day concept to calculate Mobilization Day (M-day) requirements, also provided an effective tool for trimming procurement costs. The concept was based on the provision of continuous support of forces from M-day to P-day, or the day when the production capacity of the country could meet the consumption requirements of the engaged forces. If an item could be produced quickly and in quantities to match an increasing consumption, the amount of that item that had to be purchased before the outbreak of hostilities could be relatively small. If an item required a long leadtime for production and the consumption rate in war would be high, the quantity purchased in peacetime would be relatively large. Adoption of the concept, therefore, demanded an examination of the requirements for each item, taking into account the production base, raw materials, and other available resources. Extension of the concept throughout the PEMA area portended significant savings in the future through the reduction of inventories of easily and quickly produced items.

Cost reductions resulting from better use of excess inventories amounted to \$157 million as of June 30, 1963. For example, an Army requirement for 2.75-inch rockets to be used in helicopter operations was met from an Air Force overstockage exceeding a million rockets, saving approximately \$45.2 million in Army procurement based on current procurement costs of new items. The Army bought "at the lowest sound price" by obtaining greater price competition in procurement contracts and by converting cost-plus-fixed-fee contracts to incentive and fixed-price contracts wherever possible. Savings of \$72 million resulted with the shifting from noncompetitive to competitive procurement on some items, and savings of \$120.4 million were realized by converting from cost-plus-fixed-fee to incentive or fixed-price contracts on other items. To "reduce operating costs" the Army considered the discontinuance of facilities, termination of unnecessary operations, simplification of paperwork, standardization of procedures, and reduction in the cost of operations and maintenance. As of June 30, 1963, decisions had been made that will ultimately result in savings of \$78.8 million through termination of unnecessary operations.

Modernization

During the past 2 fiscal years the efforts to speed up modernization of the Army's weapons and equipment were forwarded by the provision of adequate funds by the Congress. The increase in deliveries during fiscal year 1963 placed many new items in the hands of the troops. For the year ahead the outlook indicates that there will be another modest improvement and that the \$5.3 billion deficit in the Army's inventory will be further reduced.

The importance of adequate annual allocations for modernization cannot be overstressed. Too little money leads to a deteriorating materiel situation; too much spent in a single fiscal year results in block buying and block obsolescence as well as in upsetting the production base and causing personnel dislocations. A steady input of new weapons and equipment each year permits replacement required by wear-out and consumption and planned modernization at the same time.

Materiel Maintenance

Modernization and maintenance are both important parts of the task of keeping the Army ready for combat. The infusion of new materiel has to be accompanied by sustained efforts to maintain the old in serviceable condition.

Approximately \$1.7 billion was expended for the maintenance of materiel during fiscal year 1963. The greater portion of this amount was spent on repair parts and salaries of military repairmen and technicians in the maintenance of organizational materiel. Of the remainder, \$180 million was used for higher echelon repair of the organizational materiel on a repair-and-return-to-user basis. To augment procurement for both the Army and the Military Assistance Program, materiel valued in excess of \$1.0 billion was serviced and returned to the supply system at a cost of \$188.0 million. Materiel readiness, however, requires more than repair of equipment, and 192 million of the maintenance dollars were expended for other maintenance support activities such as maintenance engineering, the procurement of capital equipment for maintenance facilities, procurement of modifications to modernize materiel, heavy maintenance of aircraft for repair and return to users, and providing maintenance know-how to the soldier repairman through technical manuals and publications, and training by experienced maintenance technicians.

The Army also initiated action to improve and standardize its method of determining maintenance manpower requirements. On March 12, 1963, the Army established a standard method that relates maintenance man-hour requirements for each significant item of equipment to productive man-hour availability. The prime objective of the Army is to provide maintenance skills, quantitatively and qualitatively, sufficient to meet the materiel maintenance requirements of Army units.

Recognizing the critical necessity for improving the Army's materiel readiness and management, the Army initiated several programs in fiscal year 1962 to accomplish this objective, and, in fiscal year 1963, achieved significant results. For example, Operation ARM, or Army Ready Materiel, developed practical and measurable Items Standards and Unit Operational Requirement Profiles for 93 major items of

materiel; established inspection and operational readiness reporting systems to measure performance against item standards and unit operational requirements; changed Army training policies to emphasize organizational maintenance and to give better balance between operational and materiel readiness; reduced the frequency of periodic maintenance services on approximately 300 items of materiel; and consolidated fixed field maintenance shops, thus saving personnel and increasing efficiency and output. Since initiation of Operation ARM, support of materiel readiness has markedly increased worldwide.

The Army Plan for Equipment Record Revision (TAPER) went on a worldwide basis during 1963 and was designated The Army Equipment Record System (TAERS). Maintenance information on selected and significant materiel was gathered from all over the globe at the Army Maintenance Data Processing Center and fed to the machines. Consolidated reports based on machine computations were to be issued to the Department of the Army staff and major commands starting on July 1, 1963.

To help users of military equipment resolve maintenance problems, the Army Materiel Command has provided maintenance specialists on a worldwide basis under the Army Technical Assistance Program. These specialists can be military personnel, Army civilians, or, if the equipment is new and complex, contract personnel. The contract personnel are used primarily to develop an internal Army capability to maintain the new equipment. The increasing numbers of contract personnel in the program led to a review of their assignments, and 484 were replaced by military or Army civilian personnel or dropped without replacement during fiscal year 1963 with a net savings to the Army of about \$2.4 million.

Facilities Maintenance

One of the Army's continuing serious problems is the amount of deferred maintenance on buildings, structures, and services that has accumulated over the past several years.

The backlog of deferred maintenance in fiscal year 1963 was approximately \$120.3 million at active command installations, \$7.3 million at inactive command installations, \$17.1 million at active industrially funded and contractor-operated installations as well as approximately \$25 million at Army-owned industrial facilities being retained for mobilization, or a total backlog in fiscal year 1963 of more than \$170 million.

Facilities maintenance costs for the year approximated \$620 million. These costs covered maintenance, repair, and modification of real property, both active and inactive, and included utilities services, fire protection, master planning, engineering services, and payment

of rents. The total active square footage of building space was 962 million, as compared to 973 million at the end of fiscal year 1962.

Storage and Distribution

The Army Depot Improvement Plan, which was begun in 1959 and involved over 20 depots, was completed in fiscal year 1963. As of June 30, the relocation of all major mission support activities from the Rossford Army Depot at Toledo, Ohio, the Louisville Depot in Kentucky, the Mount Rainier Depot in Washington, the Benicia Arsenal in California, and Raritan Arsenal in New Jersey had been carried out. The Army is converting the Mount Rainier Depot to other use and releasing the remaining facilities.

During the year Army distribution continued to operate under the systems set up by the former Technical Services chiefs. The Army Materiel Command has proposed a new uniform distribution system and, upon final approval, it should lead to increased economy and effectiveness under either peacetime or wartime conditions. The Army also continued to work closely with the Defense Supply Agency to insure adequate provision of supplies and services to the military Services. The Army has the responsibility for providing computations of mobilization requirements to the relevant Defense Supply Centers so that reserve stockage requirements, using the P-day concept, can be determined and funded.

To standardize requisition and supply forms and to establish uniform supply priorities, the Army implemented the Department of Defense Military Standard Requisitioning Procedure (MILSTRIP) on July 1, 1962. The system, using automatic data-processing equipment, worked extremely well during the Cuban crisis. As a complement to MILSTRIP, the Army set up similar procedures for military transportation and movements. The new system is called Military Standard Transportation and Movement Procedures (MILSTAMP), and it became operational on October 1, 1963. Automatic data-processing equipment has also been used to collate on punch cards and report materiel assets in the hands of troops in order to facilitate evaluation of the Army's materiel readiness position.

Installations

Initiation of new Army construction during fiscal year 1963, other than family housing, totaled \$188 million, including \$17 million for the reserve components. For the active Army, construction completions during the year totaled \$193 million. In accordance with the President's policy for reducing the outflow of gold from the United States, construction at foreign base sites was severely limited.

The Army has 134,400 units of Government-controlled family housing, including 1,600 new units authorized and funded for fiscal 1963, as well as 109,200 units of housing in surrounding communities. Against a program level of 299,800, the total of existing assets—243,600—leaves a deficit of 56,200 units. Fifteen new housing projects were authorized and funded, eight projects were awarded, and \$8.6 million was allocated for housing improvements in fiscal 1963, while 3,059 units of family housing were completed for occupancy.

Although Congress also authorized \$9.1 million for the construction of bachelor officer quarters, no contract awards were made during fiscal year 1963 for permanent BOQ facilities. Delays were caused by the inability to obtain construction to the desired criteria within the Department of Defense \$7,000 per man cost limitation. These bachelor officer quarters were therefore reprogramed for inclusion in the fiscal year 1964 program.

The Army also placed under contract construction valued at \$610 million for other Government agencies. The bulk of this construction was for the Air Force and the National Aeronautics and Space Administration (NASA).

Real Estate

During fiscal year 1963, the Army disposed of 37,512 acres that, with improvements, had an original cost of \$126,105,768. An additional 57,985 acres along with improvements having an original cost of \$265,996,939 were reported as excess to the General Services Administration and disposal is pending. During this period, an area of approximately 1,200,000 acres, temporarily not required for military purposes, was leased out, and receipts in the amount of \$5,141,098 were deposited in the U.S. Treasury. In addition to a limited amount of new land acquired for Army Reserve centers, use permits were obtained for about 8,000,000 acres of land needed for field training exercises and maneuvers.

As real estate agent for other Government agencies, the Army acquired approximately 11,500 land tracts for the Air Force, principally to support the ICBM program. In support of NASA, the Army acquired some 2,300 land tracts for expansion at Cape Canaveral and some 750 tracts in Mississippi and Louisiana for the Mississippi Test Facility.

Transportation Services

Worldwide over-ocean cargo movements totaled approximately 7.5 million measurement tons during fiscal year 1963, the largest portion of which was moved via surface transportation. This was about 500,000 measurement tons less than the total for 1962 when especially

heavy tonnages were occasioned by the Berlin buildup. Foreign aid cargo shipments showed a decrease of approximately 150,000 measurement tons, and movement of personal property increased by some 355,000 measurement tons. The latter reflected increased travel during fiscal year 1963 of Army-sponsored passengers. Approximately 730,000 persons were moved over-ocean worldwide, 70,000 more than were moved during 1962.

Support Services

As of June 30, 1963, the Army was using 3,255 messes, 25 meat processing facilities, 18 pastry kitchens, and 27 bread bakeries to feed Army personnel. In addition, the Army operated 172 commissary stores around the world, with sales of about \$330 million for the fiscal year.

To keep the Army clothed, 143 clothing sales stores and 10 clothing issue points were in operation in the United States and overseas, along with 73 laundries and 40 dry-cleaning plants to insure that the clothes were maintained in good condition.

The Army encountered some problems in the provision of burial space for Service personnel and veterans. In four national cemeteries under Army jurisdiction—Mobile, Ala., Philadelphia, Pa., Richmond, Va., and San Francisco, Calif.—burial space was exhausted during the fiscal year. A one-gravesite-per-family-unit policy was adopted in all national cemeteries except the one at Fort Snelling, Minn., in an effort to conserve space. A total of 39,463 interments took place in the national cemeteries, and 134,293 Government headstones and markers were set up in national and private cemeteries in the fiscal year.

For personnel overseas, the Army stored approximately 400 million pounds of household goods in some 2,400 warehouses in the United States and contracted for approximately 70 million square feet of storage space in commercial warehouses for use in the event of a mobilization.

VII. *New Tools and Weapons for the Soldier*

The Army's budget for research and development in fiscal year 1963 exceeded \$1.2 billion. (See table below.)

In October 1962 the Army took action to relate the research and development program more closely to materiel requirements expressed in Army plans, and in April 1963 initiated a revised comprehensive Army Research and Development Long-Range Plan emphasizing close coordination between planning and programming.

FUNDING OF ARMY R&D PROGRAM BY OSD PROGRAM CATEGORY

(In Millions of Dollars)

Program category	Actual		Planned FY 1964
	FY 1962	FY 1963	
Research.....	72. 8	72. 9	81. 5
Exploratory Development.....	142. 1	225. 0	243. 0
Advanced Development.....	163. 9	219. 1	80. 2
Engineering Development.....	511. 4	519. 7	744. 9
Management and Support.....	137. 9	157. 6	170. 4
Operational Systems Development.....	175. 1	100. 5	102. 7
Total.....	1, 203. 2	1, 294. 8	1, 422. 7

Research for Today and Tomorrow

While Army research activities have been directed toward present areas of potential conflict, long-range plans and requirements have been developed to enable the Army to acquire the background now to solve future research and development problems.

Work in the environmental sciences, directed toward improving the Army's capability to fight anywhere in the world, continued during the year with emphasis on analyses of such potential limited war areas as southeast Asia.

One facet of ground mobility is the negotiability of terrain. A new approach to this "trafficability" was undertaken through terrain analyzer studies based on measuring the emission and reflection of

electromagnetic waves from the soil. The concept calls for an airborne multisensor system to perceive, register, and integrate data on the makeup of terrain, making it possible for the field commander to acquire regional data promptly. A prototype of this new kind of apparatus, called Waterways Experiment Station Terrain Analyzer Radar (WESTAR) and designed to measure and analyze soil condition through use of radar, went into operation at the Army's Mobility Research Center at Vicksburg, Miss.

In climatology and meteorology, the first quantitative systematic measurements ever taken of the effects of tropical cover on visibility were made in Panama, and the first regional study was written on the climatology of the entire Antarctic Plateau. The Army also conducted tests in Arizona during the summer thunderstorm season to develop new cloud modification techniques; the results will be applied in further efforts to control thunderstorms. New cloud-seeding techniques were also perfected.

The Army Ballistic Research Laboratories at Aberdeen Proving Ground, Md., through a contract let to McGill University of Montreal, Canada, have been successfully testing a low-cost high-altitude sun probe system for measurement of atmospheric characteristics (Project HARP). A 16-inch naval gun, smooth bored, is used. It is fired nearly vertically. The projectile is fin-stabilized and uses a discarding sabot at firing. Three probe packages are being used—chaff, artificial meteor, and sodium flare. Probes have reached 250,000 feet. The system has great potential for making meteorological measurements in congested areas and for acquiring data applicable to battlefield conditions. Emphasis is being placed on knowledge of extremes of climate. The Army is making an inventory and appraisal of published research results and of current research on both the tropics and the desert, for use as a management tool in R&D programs. The Polar Research and Development Center has operated Camps Tuto and Century in Greenland on a year-round basis. Among the projects conducted, there have been foundation studies for structures erected on snow, ice, and frozen ground; development of techniques for using snow, ice, and frozen ground as building and structural material; development of techniques and equipment for obtaining terrain intelligence and of airborne sensing devices (Project COLD DECK); and environmental studies of various areas in Greenland, involving physiography, vegetation, climate, and land and sea interrelationships.

The Army continued to emphasize research that would respond to the demands of the cold war. Plans are underway for projects at Fort Bragg, N.C., and at Seoul, Korea, where research will be directed toward meeting overseas requirements. Specific projects will in-

investigate aspects of relations of U.S. personnel with indigenous personnel and their implications for Army personnel policies. One study was initiated on troop-community relations. Other studies will examine problems of persuasion as they relate to support of U.S. objectives, to maximum utilization of indigenous military forces in developing nations, and to the role of the Army in civic action and counter-insurgency programs.

In operations research the Army has been conducting a study of military problems to provide commanders and staff agencies with a scientific basis for decisions intended to improve military operations. In this connection the Research Analysis Corporation established a field office with the Seventh Army in Europe to make analytical studies of military problems that confront the commanders and staffs there.

The Army continued research aimed at providing solutions to training problems. A major portion of training research will be reoriented with the initiation of Task CENTER, a project that will concentrate on basic combat training and its administration in the Army training centers.

In the life sciences, the Army has taken advantage of the opportunities offered by military operations in India and southeast Asia to solve problems of medical support in remote and underdeveloped areas. An extensive Medical Research Program in southeast Asia was initiated after a comprehensive on-site survey to determine requirements. The plan includes research into infectious and parasitic diseases endemic to the area, tropical skin diseases, nutritional and metabolic studies, trauma, analysis of battle casualties, surgical care under isolated combat conditions, and methods to improve communications and understanding between American and southeast Asian personnel at the working level. Medical research teams were sent to India in cooperation with that government to study medical problems of acclimatization and military operations at high altitudes.

Over 10 years of Army research reached a successful conclusion in February 1963 when the Federal Food and Drug Administration approved irradiated bacon, which will not deteriorate, for unrestricted consumption by the general public. In the next 2 years it is expected that clearance will be sought for irradiated potatoes, wheat flour, chicken, pork loins, and fresh oranges.

In the physical sciences, extensive Army work on aluminum alloys led to the adoption of weldable aluminum as an armor material for armored vehicles in both experimental and production stages. The weight saving has greatly increased range, mobility, and transportability of the vehicles. The most dramatic improvement concerns the M-113 personnel carrier; compared with the M-59, which it has replaced, weight was reduced from 21 to 10 tons, range increased from

120 to 300 miles, speed increased from 32 to 40 miles per hour, and fuel consumption improved from 1 to 2.6 miles per gallon.

In another development, a new ferrite material in the form of barium ferrite crystals doped with iridium was synthesized at the Army Electronics Research and Development Laboratory at Fort Monmouth, N.J. This material has improved properties for use in isolators, circulators, and electronic switches.

With increasing requirements for tactical air mobility, the Army has been conducting research in low speed aeronautics. Attention has been directed to aerodynamics, avionics, human factors, engineering, propulsion, stability and control, steady and dynamic loads, and structures and materials.

To develop scientific and technical information and disseminate it on a timely and comprehensive basis, the Army developed and submitted in December 1962 a Scientific and Technical Information Program that was approved by OSD on February 8, 1963. Some noteworthy steps have been taken under the program. A survey of Army scientific and technical information was undertaken to identify existing functions and techniques and the personnel, equipment, facilities, and funds being used. Results will be used to improve the operation of technical information centers. In April the development of a general chemical data information system, made possible by a special typewriter developed at Walter Reed Institute of Research, was begun to insure quick access to complete information on chemical compounds and related data. In May the Army Research Task Summary was revised to provide a factual basis for the review, analysis, and coordination of the Army's Research and Development (R&D) program—a format suitable for the automation of data and the establishment of a system to identify continuing R&D efforts.

The introduction of an advanced Technology Group as an element in the Army's organization for the conduct of research brought significant improvement in the utilization of resources. The group has been charged with the broad mission of "introducing new science into the Army." To establish sources of information, the Army has sought the assistance of selected individuals in various universities. Initial response was entirely favorable.

Several means of informing the Army about new scientific advances have been introduced in the report period. One is the Annual Technological Forecast, which describes the state of the art in several scientific disciplines, forecasts the potential in each over a period of 20 years, and suggests possible military applications; the 1963 edition was published in June. Another vehicle, the Scientific and Technological Applications Forecast, investigates in depth a particular discipline or technique in each publication with a thorough technical

discourse on it and recommendations for research efforts. Forecasts under preparation concern electromyography, excavation, and chemical explosives.

Development in Fiscal Year 1963

Materials and concepts uncovered in basic research programs are the sources for development of military hardware that eventually will go to the troops in the field. The Army, in cooperation with private contractors, was engaged during the fiscal year in developing an interesting assortment of equipment for the Army of the future.

For air defense, the Army investigated the feasibility of an anti-missile capability for the HAWK system, to provide the field army with defense against shortrange tactical ballistic missiles. Efforts to provide a similar capability in NIKE-HERCULES progressed to the point of engineering/user tests.

The Army decided not to begin development of the Field Army Ballistic Missile Defense System (FABMDS) and terminated the project. A qualitative materiel requirement was approved for study of a new concept called the Army Air Defense System—1970's (AADS-70's); the Army awarded three contracts for technical feasibility studies to industrial concerns for this system. It is contemplated that AADS-70's will selectively replace NIKE-HERCULES and HAWK and complement MAULER in the field army and NIKE X in the continental United States.

During 1963 the Army continued development on the REDEYE and MAULER systems for field army air defense and started development on multisystem-type guided missile test equipment having application to the MAULER and other systems of the future. This multisystem test equipment represents an important effort to reduce the multiplicity and cost of special guided missile test and checkout equipment. Another step forward in air defense lay in a tri-Service agreement to adopt electronic means of identifying friendly aircraft; Identification of Friend or Foe (IFF) will provide missile systems with a swifter reaction.

The Army's NIKE-ZEUS antimissile missile system was reoriented in 1963 toward an improved version—the NIKE X. ZEUS tests were continued to provide data for the X design, and several successful tests were conducted at Kwajalein Island in the Pacific against reentry targets launched by ATLAS and TITAN ICBMs from Vandenberg AFB, Calif.

Development of the LOH (light observation helicopter) reconnaissance aircraft has progressed to the point where the three competing manufacturers have achieved first flights. After the contractors complete test flights, the Federal Aviation Agency will issue certifica-

tion. Test aircraft were scheduled to be delivered to the Army late in calendar year 1963.

Progress was made in the utility-tactical transport aircraft field with the completion of service tests and type classification of the UH-1D Iroquois helicopter—the enlarged version of the UH-1A/B. The UH-1D carries 11 troops and a crew of 2; first production delivery was made in April. Service tests and production deliveries of the CH-47A Chinook medium transport helicopter began during the fiscal year 1963. The Chinook, largest helicopter in the U.S. armed forces, is capable of carrying 33 troops or 3 tons of cargo. In the fixed-wing transport area, a contract was signed for the fabrication of prototypes of the CV-7A Caribou II, a turboprop version of the CV-2B with a slightly enlarged fuselage comparable to that of the Chinook helicopter.

In the heavy lift area, approval has been given for limited procurement of Sikorsky S-64 helicopters. With a 10-ton lift capacity, the S-64 will be employed in concept testing. A contract was let for fabrication of a flying test bed employing the hot cycle propulsion system, an attempt to find a technique for reducing air frame weight by eliminating transmissions and shafts from the propulsion train.

During fiscal year 1963 the Army began action to secure approval of a program for an aerial weapon system able to escort troop-carrying helicopters and render suppressive fire support. Representing an improvement over the Iroquois helicopter now used to carry weapons, it would have a speed differential to permit it to rejoin troop-carrying helicopters after dropping out of flight formation to provide fire support.

The suppressive fire program was expanded when helicopters in Vietnam were equipped with machineguns and rockets. Test programs were initiated to develop improved weapons, and a study group considered ways to reduce vulnerability of aircraft and crews to enemy ground fire. Kits have been fabricated and sent to Vietnam for testing. Results of these efforts will contribute directly to materiel and techniques required to improve Army mobility.

In offensive missile development, the Army in 1962 initiated the LANCE, a highly mobile division support weapon system. Eight industrial firms submitted proposals and two were selected to compete in a program definition phase. The prime contractor was selected and development initiated on a cost-plus-incentive-fee contract based on program schedules, costs, and system performance. The LANCE will replace the HONEST JOHN and LACROSSE systems, and possibly the LITTLE JOHN.

During the report period SERGEANT engineering-service/troop tests were conducted, including firings at the White Sands and Pacific Missile Ranges and from off-range to impact on White Sands. De-

ployment of SERGEANT units overseas began, and training of additional U.S. and Federal Republic of Germany units has continued. SERGEANT will replace the CORPORAL as a corps general support nuclear weapon system. It has a range of 25 to 75 nautical miles.

PERSHING missile system R&D firings were completed and service tests were started. The first PERSHING battalion was completely equipped, trained, and committed to a service test. The battalion will support the training of additional PERSHING units at Fort Sill, Okla. The service test schedule was revised to allow completion in October 1963 rather than June 1963 so as to permit field testing of the final tactical configuration. To provide realistic and effective test firings, arrangements have been made to fire from off-range near Blanding, Utah, and Fort Wingate, N. Mex., with impact on the White Sands Missile Range. PERSHING has a range of 100 to 400 nautical miles and will replace REDSTONE as a field army general support nuclear weapon system.

Several exploratory development projects have contributed to scientific advances in guided missile technology. New liquid rocket propellants with higher energy and reduced field handling problems were evaluated to determine shock sensitivity and design characteristics. Studies and small developments were undertaken to improve components of missile inertial guidance systems. Parametric studies of a missile system that can home on a moving target, such as a tank, were conducted. Prototype fuzes for guided missiles of lighter weight and



Figure 9. PERSHING missile with emplacement elements. At left, fire control and power supply; center, launch vehicle with aiming devices; and right, communications equipment showing antenna partially inflated.

reduced size were fabricated and evaluated, and research on new fuzing techniques was continued.

The prototype of the Army's first trailer-mounted mobile nuclear powerplant, the ML-1, was test operated by the Atomic Energy Commission Reactor Test Station in Idaho. The field units of this plant will provide a maximum output of 500 kilowatts, will be air transportable, and will be capable of operating for a year without refueling.

To fill requirements for larger load centers, development of a second trailer-mounted mobile reactor has been begun. This plant, called the Military Compact Reactor, will have an output of 2,000 to 3,000 kilowatts and will also be air transportable.

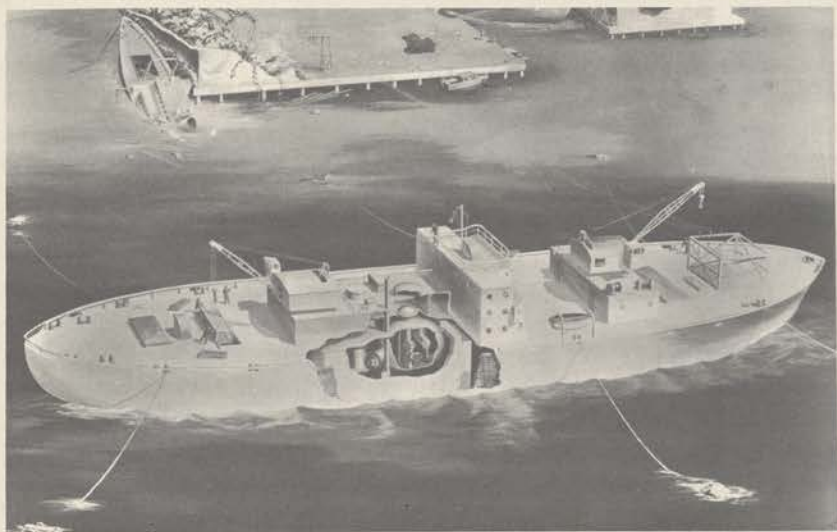


Figure 10. Drawing of a proposed 10,000-kw barge-mounted nuclear powerplant MH-1A.

Construction was begun on a 10,000-kilowatt nuclear powerplant mounted in the hull of modified Liberty ship; delivery is planned for 1965. Five stationary nuclear powerplants are now in operation—at Fort Belvoir, Va.; Fort Greely, Alaska; Camp Century, Greenland; McMurdo Sound, Antarctica; and Sundance, Wyo. Studies were continued on the feasibility of using nuclear powerplants as a source of energy to produce a fuel in the field that could be used for the propulsion of vehicles, thus introducing advanced logistic mobility to the battlefield.

In the early part of fiscal year 1963, the Department of Defense and the Atomic Energy Commission completed an extensive series of nuclear tests at Johnston Island in the Pacific and at the Nevada test site. These tests, for which the Army assisted in providing operational and technical support, have produced information that will

help the Army in conducting tactical nuclear warfare and in developing an effective antiballistic missile defense.

A significant event was the Army's nuclear tactical exercise at the Nevada test site in July 1962. This exercise, in which a mechanized infantry company was supported in the attack by a nuclear weapon delivered by a supporting unit, demonstrated the capability of nuclear weapons in support of ground troops and the ability of troops to maneuver in a nuclear environment.

There were a number of advances in fiscal year 1963 in conventional weapons and ammunition. Development was completed on two lightweight self-propelled aluminum armored howitzers, the T-195E1 and the T-196E1, redesignated the M-108 and M-109, respectively. The two use the same chassis, which can swim inland waterways. Two air- and helicopter-transportable 105-mm. howitzers, the XM-102 and XM-104, were brought into the final phase of development. The first, a lightweight (3,000 pounds) towed weapon, has a 360° traverse; the second, an unarmored self-propelled howitzer weighing 7,300 pounds, can also swim inland waterways.

The XM-23, a lightweight Laser rangefinder for artillery and other combat observers that would provide precise target location data as a means of increasing primary fire support effectiveness, is under development.

Attention was centered on individual arms in contracts let to three industrial firms for prototypes of a special purpose weapon that would fire several types of ammunition for use against point or area targets, yet be light enough to be carried by the foot soldier. Springfield Armory will also provide a prototype of this weapon for competitive firings. The best prototype, or one combining the best features of those demonstrated, will be funded for development.

Development was started on a new infantry heavy antitank assault weapon system. TOW (for Tube launched, Optically automatically tracked, Wire command link guided missile) will be mounted on light vehicles or employed on a ground mount and will be a significant improvement over present heavy antitank weapons. Meanwhile, the feasibility of using the SHILLELAGH missile as a weapon against armor and field fortifications in close support of troops was demonstrated in successful test firings; full engineering development has started.

In the area of combat support and general materiel, the 1962 decision to expedite technological advances in the art of night vision proved sound. In 1963 the technical feasibility of two promising approaches was confirmed, and engineering development on some night vision aids was undertaken. Requiring only ambient starlight illumination, these devices will greatly enhance night operations.

In the field of vehicles, component development for a new main battle tank has continued, with emphasis on improving all major areas of tank design. The General Sheridan armored assault vehicle test rigs continued in operation and developed information to improve the pilot model; long leadtime items were procured and pilot construction is proceeding. A new 5-ton cargo truck entered development, and a multifuel engine was selected for installation in the present model. Also, a procurement contract was signed for GOER vehicles for troop test in Europe in 1964.

Because of the potential in chemical and biological weapons and defensive systems, Army research and development in that field continued at an expanded rate. The emphasis has been on development of defensive items. Methods of detecting, identifying, reporting, and analyzing chemical and biological agents are being investigated, along with methods and procedures for medical and physical protection against these agents. Examples of defensive items adopted or under development include a helicopter pilot's mask that provides a full vision face piece; an individual kit for detection and decontamination of toxic liquids on the soldier's clothing and skin; self-treatment devices against chemical/biological agents; and a warning device that reveals the presence of chemical agents in the atmosphere.

Communications, one of the most critical of all fields, received attention in 1963 with the adoption for production of the AN/GRC-106, the 50-mile voice radio of the Army's high frequency single sideband family. Development was initiated on the manpack set and continued on the 100-mile voice set. Much lighter in weight than the AM high frequency radios they will replace, the sets will provide improved long-range voice communications. Development also continued on the lightweight FM transmitter-receivers, the AN/PRT-4 and AN/PRR-9, for use at platoon and squad level. This equipment, weighing less than 2 pounds and having a range of 1 mile, is scheduled for type classification in fiscal year 1964. The new aircraft set of the Army FM family, the AN/ARC-54, was standardized and is going into production. These FM radios greatly increase flexibility by providing common voice channels to all users—infantry, artillery, and armor.

In strategic communications, the Army has continued to develop the Defense Automatic Integrated Switch (DAIS), formerly Universal Integrated Communications System (UNICOM), designed to provide faster, more reliable, and more secure communication from the President, the Secretary of Defense, and the Joint Chiefs of Staff to major military commands throughout the world. The Army section of the project concerns the development of an engineering test model of an automatic electronic switch for the Defense Communications System.

Through participation in the Defense Communications Satellite Program and NASA's SYNCOM communications satellite project, the Army has continued research and development to improve strategic communications. In both projects the Army's role is to develop surface communications and conduct communications experiments.

To supply Army tactical combat forces with the most effective firepower, mobility, communications, and logistics possible, mobile computer systems are being developed for the field army that will gather and display changing tactical information for command and control of battlefield operations. Research and development also has continued on ground-based and airborne equipment for combat surveillance. A new photographic processing laboratory, the ES-29, is in production, while equipment to help artillery ground and aerial observers in requesting fire is being developed.

Development of a new portable X-ray unit weighing 57 pounds was completed and field testing is under way. This apparatus is simple and can be carried by a one-man operator. It functions on either 110- or 220-volt alternating current and incorporates a silver cadmium battery as the prime source of power. When battery operated, the unit can take at least 165 radiographs without recharging and is capable of taking diagnostic radiographs of any part of the body under battlefield conditions.

An important developmental step was the expansion during 1963 of the U.S. Army Limited War Laboratory, Aberdeen, Md., from a skeleton cadre to an operational activity. Designed to provide a quick-reaction capability for urgently needed items of equipment for use in special warfare and limited war operations, the laboratory program has grown to over 60 tasks, the majority involving exploratory development. Such items as special types of radios, counterambush devices, area-oriented survival kits, and special clothing are included among the tasks now under way. Emphasis is being placed on small, simple items on which research and development can be completed in months rather than years.

VIII. Public Works

During 1963 the Army, through the Corps of Engineers, continued to participate in the planning and activities of the Area Redevelopment and Urban Renewal Administrations and other Federal and State agencies, and concurrently participated with the Federal Council for Science and Technology and the National Academy of Sciences in Federal research programs related to natural resources.

Emphasis has been placed on the development of comprehensive river basin plans to meet the President's objective of developing such plans for all major river basins by 1970. The Corps of Engineers initiated measures to strengthen the planning organization in the Office of the Chief of Engineers and in field offices, while improving procedures for coordinating civil works planning with similar activities in other Federal and non-Federal agencies.

Appropriations

Congress appropriated more than \$1 billion for civil works in fiscal year 1963. For the allocation of the funds, see following table.

	(In Thousands of Dollars)	
Construction, General.....		792, 871
Planning and Design.....	17, 020	
Construction.....	775, 851	
Operation and Maintenance, General.....		145, 850
Mississippi River and Tributaries.....		73, 504
General Investigation.....	145	
Planning and Design.....	100	
Construction.....	53, 259	
Maintenance.....	20, 000	
Expenses, General.....		14, 165
Investigations, General.....		18, 100
St. Lawrence River Joint Board of Engineers.....		20
Permanent Appropriations (Maintenance and Operation of Dams; Hydraulic Mining; Payment to States).....		2, 000
Total.....		1, 046, 510
		167

Construction

The number of projects underway or placed in use during fiscal year 1963 are listed below:

Type of project	Number under construction	Number placed in useful operation
NAVIGATION:		
Channels and Harbors.....	113	37
Locks, Dams, and Canals.....	19	2
Bridge Alterations.....	2	0
FLOOD CONTROL:		
Reservoirs.....	63	8
Local Protection.....	79	13
MULTIPLE-PURPOSE, INCLUDING POWER.....	32	1
BEACH PROTECTION.....	7	0
Total.....	315	61

Progress and Utilization

Cumulative progress in water resources development and utilization of facilities in relation to the report period, are indicated below:

NAVIGATION:

Locks.....	232
Dams; Navigation with locks.....	166
Improved Harbors.....	500
Improved Waterways.....	22,500 miles
Traffic (Domestic and Foreign) (CY 1962).....	1,130 million tons
Commerce (Great Lakes and Inland) (CY 1962)	
(1/6 of U.S. total).....	220 billion ton-miles

FLOOD CONTROL:

Projects in Operation.....	799
(Reservoirs—210)	
(Local Protection—589) (includes 164 projects under general authorities)	
Reservoir Storage (June 30, 1963).....	176 million acre-feet
(Flood Control—69 million acre-feet)	
(Other—107 million acre-feet)	
Cumulative Damage Prevented (June 30, 1963).....	\$11 billion

HYDROELECTRIC POWER:

Installed (1/5 of U.S. total).....	8.2 million kw
Under Construction.....	4.4 million kw
Additional Authorized.....	8.0 billion kw
Cumulative Generation (June 30, 1963)	
(30 billion kwh FY 1963).....	285 billion kwh

WATER SUPPLY:

Municipal and Industrial Storage.....	1.5 million acre-feet
Irrigation Storage.....	4.0 million acre-feet

RECREATION ATTENDANCE (CY 1962)..... 127 million

Water Resources Development

During the year the Army had under construction 134 navigation projects, of which 39 were placed in useful operation. In fund allocation the Army gave primary consideration to work on deep draft harbors and major inland waterways in order to serve the requirements of commerce and navigation. In addition, maintenance and operation activities cost \$121 million.

The current program for modernization of canalized waterways through replacement or reconstruction of existing locks and dams calls for new structure on the Monongahela River, the Warrior-Tombigbee system, the Ohio and Mississippi Rivers, and miscellaneous projects on other rivers, totaling \$1.6 billion. Thirteen replacement structures are under construction and will be completed at an estimated cost of \$630 million.

Since 1936 the Army has completed 600 flood control projects; an additional 142 are under construction. The disastrous effects of recent floods emphasize that large areas will remain vulnerable to severe damage until flood control plans are translated into completed projects.

In the field of power, a total of 707,000 additional kilowatts of hydroelectric generating capacity were placed in operation at three multiple-purpose projects in fiscal 1963. As of June 30, the generating capacity in operation at 37 multiple-purpose projects located in 20 states was 8,238,400 kilowatts, representing 4 percent of the Nation's total generating capacity and 21.5 percent of the Nation's total hydroelectric generating capacity. These generating facilities produced 30 billion kilowatt hours for marketing during the fiscal year. This represents 3.4 percent of the Nation's total power and 18.1 percent of its hydroelectric power for the report period.

During the fiscal year construction of reservoir projects for water storage and irrigation continued, as did joint planning with the Department of Health, Education, and Welfare to control water pollution.

During the calendar year, 127 million people made use of civil works projects, bringing to approximately 1 billion the total attendance since 1946. The public now has access to nearly 4 million acres of water in recreational areas, where fishing, boating, and wildlife attract increasing numbers of visitors.

Projects to improve hurricane protection continued through fiscal year 1963 at Providence, R.I., and Texas City, Tex. Construction was begun on the New Bedford-Fairhaven-Acushnet project in Massachusetts, and preconstruction planning was started in Louisiana on the New Orleans to Venice project, in Massachusetts on the Wareham-Marion project, and in Texas at Port Arthur.

The present water resources development program, embracing over 3,600 projects, has an estimated construction cost of \$22 billion. Ap-

appropriations through fiscal year 1963 totaled almost \$12 billion. Authorized projects for which construction funds have not yet been appropriated have an estimated cost of \$4 billion.

An appraisal has been made of the probable water resources needs that will exist by 1980, based on median projections of population, gross national product, and industrial development. It was estimated that about \$28 billion in capital investments would have to be made by all the interested parties to meet the estimated requirements.

Under statutory responsibilities for emergency flood control activities, the Army in 1963 carried out advance preparation, flood fighting and rescue work, and repair and restoration of damaged flood control works. The Army also provided assistance in connection with major disasters at the request of the Office of Emergency Planning (OEP).

Major flooding occurred in Florida in September 1962, in the Sacramento Valley of California in October, on several rivers in Washington during October and November, and on the Rogue River in Oregon in early December. In February 1963 heavy rains and melting snows caused widespread flooding in California, Nevada, Idaho, and Washington. Flooding was severe in the Ohio River Basin during March 1963. Torrential rains during April 1963 also caused disastrous flooding on the islands of Oahu and Kauai, Hawaii. In areas in Nevada and California affected by major flooding, assistance provided at OEP request included debris removal and protective work. In Oregon, the Army, at OEP request, cleared channels to alleviate hazardous conditions following a windstorm disaster in October 1962, and along



Figure 11. Salvaging a 356-ton tank of liquid chlorine from the Mississippi mud.

the Middle Atlantic coast, completed Operation FIVE-HIGH, the OEP-authorized disaster assistance program resulting from the severe northeast storm of early March 1962, at a cost of \$13.8 million. Shore protective work on the east coast of Florida, requested after a disastrous storm in December 1962 and estimated to cost \$1,970,000, was 70 percent complete as the fiscal year closed.

At the request of OEP, the Army also assumed primary responsibility for the salvage of four tanks of liquid chlorine from the barge *Wychem 112*, which sank in the Mississippi River below Natchez, Miss. A contract for the salvage operation was awarded on September 29, 1962, and the last tank was successfully removed on November 5. Direct costs for the operation were about \$1,600,000, exclusive of military costs for troop support and for items of military supply furnished from Army sources.

IX. Civil Affairs

Army administration of domestic projects was accompanied by responsibility for a number of oversea programs in the field of civil affairs. Some of the responsibilities were continuations of long-term tasks, others were expanded by international developments that demanded increased responses. In meeting these requirements, the Army had to provide trained officers, skilled in the handling of civil administration and military-civilian relations.

Administration of the Panama Canal

One of the oldest civil administration responsibilities of the Army is the Panama Canal. As personal representative of the President, the Secretary of the Army is the "Stockholder" in the Panama Canal Company, a corporate agency of the U.S. Government responsible for the maintenance and operation of the canal. The Governor of the Canal Zone traditionally is an Army officer and director and president of the company; he is charged with administration of the Canal Zone Government and operates under the supervision of the Secretary of the Army.

After a steady growth in traffic for 11 consecutive years, the canal suffered a decline during fiscal year 1963. Ocean-going transits fell slightly from 11,340 in fiscal year 1962 to 11,300 in 1963, and toll revenues dipped from \$58.3 million to \$57.0 million. Net revenue for the fiscal year was \$2.5 million.

A 10-year capital improvement program was begun in fiscal year 1959 and is still underway. Included in the program were: The widening of the Gaillard Cut; replacement of towing locomotives; new lighting for the locks and the Gaillard Cut; improved locks overhaul procedures; and the deepening of the canal. Capital improvements, as well as operating expenses and fixed charges, have been funded by the company through fiscal year 1963 without appropriations. Capital expenditures amounted to \$17 million during the past year.

Since there had been some points of dissatisfaction in U.S.-Panamanian relations concerning the canal, the two governments carried on discussions during the first half of the fiscal year. The Governor of the Canal Zone took part in the negotiations, and the Secretary of the Army was a member of the group that reviewed the specific proposals made. On January 10, 1963, the two governments



Figure 12. Gatun locks, Panama Canal, with ships moving both north and south.

reported that they had agreed to some adjustments. In the future, the Panamanian flag will be displayed with the American flag by civilian authorities in the Canal Zone, and Panama will have the authority to issue permits to foreign consuls to function in the Zone. In an effort to narrow the gap between the wages paid U.S. and Panamanian workers in the employ of the United States, a three-phase wage improvement program has been adopted. The first phase, involving wage increases of from 2 to 29 percent, was put into effect during the year, and a minimum wage of 70 cents an hour became effective on July 1, 1963, as phase two began. A minimum wage of 80 cents an hour, effective July 1, 1964, is contemplated as the last phase of the program. The total cost of the program for all agencies in the Canal Zone after the last phase is put into effect will be about \$10 million a year.

In the meantime, further discussions continue on equal job opportunities and social security benefits for Panamanian workers, the use of Panamanian postage stamps in the Canal Zone, and the Panamanian need for pier facilities in the Zone. Consideration has also been given to providing increased business opportunities for Panamanian concerns in the Zone and to returning to the Republic land in the Canal Zone not in use or required by the United States.

The Ryukyu Islands

A more recent responsibility of the Army has been the civil administration of the Ryukyu Islands. Since World War II the Army has administered this former Japanese archipelago which contains Oki-

nawa, the most important U.S. base in the western Pacific. The High Commissioner of the islands is an Army officer.

Under presidential instructions, the High Commissioner has continued to give strong encouragement to the development of an effective, responsible, and democratic government on the islands during the fiscal year. He has also made vigorous efforts to improve the welfare, economic status, and cultural progress of the Ryukyuan people. President Kennedy directed that the term of the legislature be lengthened from 2 to 3 years and that the legislature have the prerogative of submitting a nomination for appointment to the post of chief executive of the local government.

Because of the tremendous population pressure in the Ryukyus, the Army has supported Ryukyuan efforts to emigrate, particularly to the underdeveloped countries of Latin America. For instance, the Army has helped bring several thousand Ryukyuan to three large settlements in the vicinity of Santa Cruz, Bolivia. These emigrants have carved homesteads for themselves out of the virgin forests, are developing a thriving agricultural economy, and are supplying large amounts of rice, sugar cane, fruits, and vegetables to the neighboring markets. At the end of the fiscal year, action was being awaited to complete the transfer of \$800,000 from the Agency for International Development to the Army out of funds authorized by Congress for the Alliance for Progress, for further support of this promising project, which is beneficial to Bolivia as well as to the Ryukyus. Negotiations are underway between the U.S. and Bolivian Governments for the conclusion of an agreement concerning the respective responsibilities of the two governments with regard to the settlers.

In this connection, legislation was introduced in the 88th U.S. Congress that, if passed, would expand the opportunities for Ryukyuan to emigrate to the United States by setting up the Ryukyus as a separate quota area, thus relieving them of the requirement of competing for immigration visas with all other residents of the Asia-Pacific area.

On the economic side, a congressional act that authorized appropriations for the promotion of economic and social development in the Ryukyus was amended during the fiscal year to increase the annual limitation from \$6 million to \$12 million. Although \$12 million was the amount requested in fiscal year 1963, the Congress appropriated only \$8.9 million. This amount constituted, however, a \$1.8 million increase over the total appropriated for 1962. For fiscal year 1964, \$12 million was requested for economic development to include expanded programs for public works and economic development, \$2 million for expansion of the Okinawa water system, and \$1 million for disaster relief.

Economic progress in the Ryukyus has continued, reaching a 14 percent growth rate as compared to the previous average of 10 percent. Negotiation of a 3-year, \$21.1 million Title IV, Public Law 480, program was a big step forward in fiscal 1963. The program would permit loans for the expansion and diversification of such industries as poultry and livestock from funds generated by the sale of U.S. surplus agricultural commodities.

Plans were developed to expand the integrated water system of Okinawa, under a 5-year program, at an estimated cost of \$20 million. In addition, construction began in January 1963 on the approximately \$14 million four-unit Kin Power Plant, which will have a capacity for producing 80,000 kilowatts. The plant is scheduled for completion in December 1964 and the first unit is expected to be in use during the early part of fiscal year 1965. The Department of Defense and the U.S. Interagency Textile Administrative Committee concluded an agreement during the year for the implementation of a voluntary control system by the local government on the export to the United States of cotton textiles from the Ryukyus. With the cooperation of the Federal Aviation Agency, the Army investigated the possibilities of developing civil aviation in the islands with the objective of bolstering the civilian economy.

Labor relations in the Ryukyus during fiscal year 1963 were highlighted by a pay raise of about 12 percent for the approximately 55,000 Ryukyuan employees of the U.S. agencies. Further, a year-end bonus of an extra month's pay for each employee who had served during the previous 6 months was also announced.

A notable development in the administration of justice in the Ryukyus occurred during the fiscal year when a jury system was instituted in the criminal courts of the civil administration. The Army had been concerned about the constitutional rights of U.S. citizens tried therein since these rights might be violated by the absence of a jury system.

Following the submission of the findings and recommendations of a joint Ryukyuan-American committee appointed by the High Commissioner to review the entire subject of Ryukyuan pretreaty claims against the United States, the High Commissioner forwarded his recommendations to the Department of the Army proposing settlement of the claims through legislative action.

Formal negotiations between the Governments of Japan and the United States, with a view to developing agreements as to the basic framework within which Japanese financial and other assistance would be provided to the Ryukyus, continued during the year. In the meantime, a memorandum of understanding was concluded concerning Japanese assistance to the Ryukyus for the Japanese fiscal year 1962 (April 1, 1962, to March 31, 1963).

Civil Affairs Units

The practical experience gained in administering the Panama Canal and the Ryukyus was complemented by the Army's potential ability to provide civil affairs units for other areas if the need should arise. During the year the Army was given primary responsibility within the Department of Defense for developing the civil affairs aspects of contingency plans for several foreign areas that became critical.

Army resources for meeting contingency operations consisted of one civil affairs group and two civil affairs companies. In addition, there were four civil affairs augmentation units with Special Action Forces—an increase of two over the preceding year. The augmentation units provided theater support for all types of civil affairs requirements as well as a ready resource for personnel for civic action mobile training teams. Two of the augmentation units were stationed in the United States, one was on Okinawa, and the fourth was in the Panama Canal Zone. To expand the Army's capabilities in the civil affairs field still further, certain civil affairs units of the U.S. Army Reserve were selected, authorized increased drill strengths, and given area and language training missions. Thus, the Army hopes to be better prepared for the crises of tomorrow.

X. Aiding Our Allies

Army personnel around the world are engaged in providing military assistance to friendly foreign nations. In some countries, the nature of the aid is funds and materiel; in others, advice and training have been added. The objective of the United States aid is simple—to strengthen the capabilities of the legitimate governments to resist internal threats that endanger democratic processes and to repel external aggression. Frequently, success crowns the efforts of the Army military assistance personnel; occasionally, the results are less encouraging. Whatever the outcome, the attempts to combat aggression and poverty have been pursued with vigor and determination.

Personnel and Funds

In fiscal 1963 the Army had over 7,000 personnel assigned to military assistance tasks in over 40 foreign countries around the globe. The personnel were members of advisory and assistance groups, missions, commissions, and commands. In some nations, the U.S. organization consisted solely of Army personnel, but many were manned by Navy and Air Force officers and enlisted men as well.

Under the Military Assistance Program (MAP), the Army provided support to 80 nations and international organizations through grant aid and the Military Assistance Sales Program. Grant aid materiel and services totaled \$805 million, of which \$577 million represented materiel deliveries and \$228 million logistical and other services, including training and administration. In addition, the Army sold military equipment and services to friendly nations. Military materiel sales totaled \$459 million during the fiscal year and total deliveries were valued at \$397 million. Foreign purchases under the Military Assistance Sales Program include modern, preferred types of equipment.

The Army also supported the Agency for International Development (AID), providing materiel valued at about \$25 million to approximately 20 countries. During the year, the Army discussed proposals with AID for the provision of assistance in making inventories of physical resources in Latin American countries.

To provide trained personnel in support of mutual security, the MAP furnished training in the Army schools in the United States and

overseas for 21,000 foreign personnel. An individual program of training was established for 86 nations designed to provide a broad spectrum of subjects ranging from basic military skills to advanced weapons technology. Funds programed for military training including mobile training teams, orientation tours of the United States, and military school courses totaled \$51 million.

Civic Action Programs and Units

As a companion to funds and materiel, military civic action received increasing emphasis in fiscal year 1963. Programs designed to support U.S. mutual security objectives and to bolster the governments of friendly nations were under way in 25 countries—14 in Latin America—during the period.



Figure 13. U.S. Army engineer (center) and two Ecuadorian soldiers discuss route of road-building project, Ecuador.

The Army was not directly responsible for civic action policy development, funding, or programing, but did provide doctrinal and operational guidance for the program. Most of the critical skills essential to the success of a civic action program were found in the Army. Experience demonstrated that the most urgent needs existed in the fields of country survey, program development, public health, communications, engineering, resettlement, and education. The Army provided both the men and the materiel resources for the civic action teams; Army personnel worked side by side with foreign military representatives in setting up and carrying out civic action programs.

Since the wide variety of situations and requirements for civic action precluded the development of a type or standardized organization, personnel were drawn from theater or U.S. resources to meet the needs of the nation involved. Within the theaters, the principal resource was the civil affairs augmentation detachment. These detachments contained a cross section of civil affair skills and were ideally suited to the support of civic action activities.

As part of the over-all effort to develop U.S. and allied personnel resources to sustain civic action programs, the Army initiated a 6-week course at the U.S. Army Civil Affairs School, Fort Gordon, Ga. The course was given on a regularly scheduled quarterly basis.

Even though civic action as an approved program has been in operation for only a year and a half, it has already begun to pay dividends in improved relationships between the local troops and the people. It appears to be providing a strong bond, uniting them in their struggle for freedom and economic improvement.

XI. Retrospect and Prospect

Fiscal year 1963 has been eventful, and the prospects for the next 12 months are equally challenging. In the Far East, the belt of tension stretching from Korea to India offers little hope of relief. The fighting in Vietnam and the threats to other nations along Communist China's perimeter are likely to persist. In any event, military aid and advice for this highly critical area will continue.

In Europe, the outlook seems more promising. Yet, even if a partial East-West *detente* should develop, the Berlin problem and the American commitments to NATO will remain. Army forces stationed on the Continent will retain their high operational readiness status and will be prepared to cope with any contingency.

Communist penetration of the Western Hemisphere, whether in Cuba or on the mainland, will always be a matter of deep concern. The Army hopes that its efforts to improve military-civilian relationships in Latin America through expanded civic action programs will help to counter the Communist threat. At the same time, the Army will maintain its ties with fellow soldiers south of the border through military assistance programs, conferences, and school programs.

In the newly emerging nations in Africa, the need for military aid and counsel will probably increase. Internal order and strength must be built up to create stability and to permit economic and cultural growth.

Internally, the Army organizational changes in the secretariat, staff, and major commands, are well on their way toward completion. It will take considerable time, however, before all the combat forces are changed over to the new ROAD reorganization.

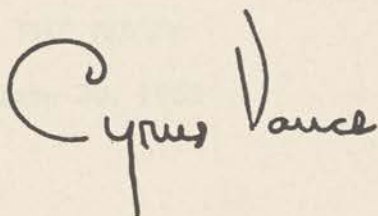
The emphasis on flexible response by the President and the Secretary of Defense has led to an increase in operationally ready forces with nuclear and conventional warfare capabilities. Developments in Vietnam have pointed up the need for mobile forces trained in special warfare skills. Both of these trends have been strengthened during the fiscal year and will be sustained.

To speed the decision-making processes on the higher levels and to reinforce control of funds and programs, improved management techniques have been adopted and put into effect. Greater use of machine-processing programs appears inevitable in the effort to bring

under control the mass of data that the Army must accumulate in its various and farflung activities.

Because of the tremendous costs of military preparedness, efficiency and economy must be strictly enforced. No effort has been or will be spared to give the American soldier the most modern and effective weapons and equipment available, nor will there be any interruption in the constant struggle to reduce the costs of his arms, vehicles, and supplies through the adoption of more economical and efficient methods.

Under the American system, the most important cog in the military machine is man himself. Although the Army soldier today must remain essentially a fighter, his knowledge must extend beyond his arms, equipment, and battlefield maneuvers. He must understand the political, economic, and social forces that are prevalent in the world and their impact on his mission. The complexity of international affairs on the one hand, and of military developments in technology on the other, demand a breed of soldier with many talents, well-schooled in his own field, yet thoroughly familiar with the elements that are influencing conditions in other areas. The Army will continue to make every effort to produce such men.

A handwritten signature in dark ink, reading "Cyrus Vance". The "C" is large and loops around the first part of the name. The "V" is tall and narrow, with a long vertical stroke extending downwards.

CYRUS VANCE,
Secretary of the Army.

Annual Report
of the
SECRETARY OF THE NAVY
July 1, 1962, to June 30, 1963

Contents

	Page
Chapter I. THE MISSION OF THE DEPARTMENT OF THE NAVY.....	185
II. DEPARTMENT OF THE NAVY PROGRAMS AND EXPENDITURES..	188
III. NAVY AND MARINE CORPS OPERATIONS.....	190
Cuba.....	190
Vietnam.....	191
Thailand.....	192
Space.....	192
Guam.....	193
Combined Exercises.....	194
People-to-People Program.....	195
IV. INCREASED CAPABILITY.....	197
Ships.....	197
Personnel.....	200
Weapons.....	206
Facilities.....	211
Studies.....	213
Material Readiness.....	214
Research.....	218
V. INCREASED ECONOMY.....	221
Management Improvement.....	221
Contracting.....	222
Financial Management.....	223
Inventory Management.....	224
Cost Reduction Program.....	226
Automation.....	226
Manpower Utilization.....	228
Audit Utilization.....	231
VI. THE NAVY AND THE CIVILIAN ECONOMY.....	232
Industrial Complex.....	232
U.S. Merchant Marine.....	233
Small Business.....	234
Equal Employment Opportunity.....	235
Procurement in Labor Surplus Areas.....	237
VII. CONCLUSION.....	238

1. The Mission of the Department of the Navy

The mission of the Department of the Navy is to develop and to maintain naval forces in constant readiness as a flexible and economical instrument of national policy.

The Navy and the Marine Corps as an Instrument of National Policy

As an instrument of national policy, the primary tasks of the Navy and the Marine Corps are (1) participation in the prevention of general war; (2) participation in the prevention, containment, and suppressing of insurgency or limited wars; and (3) maintaining the freedom of the seas.

A major concern of the Navy is participation in the prevention of general war. To this end, it maintains deterrent forces in a constant state of readiness. Attack carrier striking forces, missile-equipped submarines, and amphibious forces are continually on station, teamed with other forces of unified and specified commanders. The dispersion and concealment offered by the oceans insure to the national retaliatory system a high percentage of surviving weapons. They therefore provide a vital contribution toward the deterrence of nuclear conflict.

Preventing, containing, and suppressing limited war requires the capability to move fighting forces quickly to trouble spots across the seas, to supply them, and to maintain access to them while they are there. The Navy stands ready to perform these functions on short notice.

In addition, the high state of readiness of the Marine Corps is one of our major assets in dealing with limited-war situations. This has been proven on a number of occasions by the immediate and effective response to crises in widely separated areas of the world. The Navy-Marine Corps team has revalidated the concept of ready-to-land amphibious forces as an essential element of national strength.

Maintaining the freedom of the seas is essential. World power and sea power are closely related. The majority of the maritime nations have signed mutual defense pacts with the United States. Even though many of these nations have extended shorelines, all signed the pacts with the feeling that they were bound to us, rather than separated from us, by the seas. And in so signing, each nation staked

its future on the ability and intention of the United States to maintain its dominant seapower position.

The Navy as a Flexible Instrument of National Policy

We live in an uncertain world. It is difficult to predict the precise spot where conflict or the threat of conflict may arise some years hence. Moreover, it is difficult to estimate far in advance the precise degree of power that must be displayed or brought to bear at some future time. Thus it is essential that the means available to the United States for the projection of its influence be both versatile and rapid. The inherent characteristics and self-sustaining nature of naval forces endow them with these attributes to a unique degree. They can deploy swiftly and operate near areas of possible conflict with maximum political freedom.

Today the Sixth and Seventh Fleets operate within close proximity to the perimeter of the Sino-Soviet bloc. These versatile fleets, operating in waters adjacent to areas of tension, have a stabilizing effect. This derives from their capability to apply, in a selective and graduated manner, the precise degree of power required by the circumstances, whether it be a show of force, an amphibious landing, or a heavy nuclear strike. The Second and First Fleets are maintained ready, either to reinforce distant deployed forces or to move to other areas to assist our allies.

The contribution of naval forces includes humanitarian assistance and good-will visits to foreign ports. Visits by warships, individually or collectively, are accepted by custom and tradition, and U.S. naval ships and personnel make a major contribution to the furtherance of national policy and objectives.

For the future, the Navy and the Marine Corps are constantly adapting their forces, weapons, and tactics to provide an even more flexible instrument of national policy. Improved communications, data processing, and data display techniques are enhancing the Navy's capabilities in the area of command and control. Space systems are making an increasing contribution to naval communications, surveillance, meteorology, and navigation. In addition, nuclear propulsion may decrease the magnitude of underway logistic support requirements and permit operations at sea for longer periods of time.

The Navy as an Economical Instrument of National Policy

The flexibility of naval forces enables the United States to deal economically with an uncertain, rapidly changing world situation. By taking advantage of the vastness and depth of the seas for both mobility and protection, naval forces assure the maximum amount of usable power at the time and place it is needed.

In addition, in a period of concern about the balance of payments, naval units are a relatively frugal means of maintaining a force-in-being around the world. Mobile naval forces represent an investment which always remains the property of, and under the control of, the citizens of the United States. When ships of the Navy require overhaul, they can be brought back to the United States for repair.

In addition to the economic advantages inherent in the nature of naval power, the Navy and the Marine Corps are exerting every effort to obtain the maximum benefit from each dollar expended. In fiscal year 1963 the Department of the Navy has modified its organization structure, has vigorously pursued cost reduction, and has taken a large number of other steps to increase its efficiency. These vigorous measures have enabled it to absorb a portion of the steadily rising cost of complex weapon systems, and to attain unprecedented levels of performance.

The Navy and the Civilian Economy

The Navy is not only an instrument of national policy in terms of the projection of national influence abroad; Navy activities are also important in domestic affairs. Navy contracts have a significant impact on the country's shipyards and industrial plants, and Navy support serves to bolster our essential merchant marine.

II. Department of the Navy Programs and Expenditures

Fiscal year 1963 programs placed principal emphasis on support of general purpose forces. In addition, very significant contributions to the Nation's strategic retaliatory forces were made by the Navy's POLARIS program. The bulk of the remaining resources were devoted to research and development of future weapon systems and to general support of the fleet. The Navy's program for 1963 were as follows:

TOTAL OBLIGATIONAL AUTHORITY, FISCAL YEAR 1963

(In Millions of Dollars)

Strategic Retaliatory Forces.....	1,921.2
Continental Air and Missile Defense Forces.....	133.0
General Purpose Forces.....	8,588.1
Airlift and Sealift Forces.....	51.8
Naval Reserve Forces.....	352.8
Research and Development.....	1,097.2
General Support.....	2,954.8
	15,098.9

In fiscal year 1963 more than \$14.0 billion were spent to maintain the Navy and the Marine Corps. This was approximately \$745 million greater than in fiscal year 1962 and reflected the accelerating costs of national defense in a period of rapid technological change. These changes resulted in a 1963 fleet containing fewer, but considerably more powerful and more sophisticated, ships and aircraft.

In supporting its military programs, the Navy spends about half of its funds on current operating expenses, and the remainder on the acquisition of new "assets" in the form of ships, aircraft, missiles, and various military construction projects, as well as on research and development of these new assets. These functional expenditures are set forth below.

EXPENDITURES BY FUNCTIONAL TITLE, FISCAL YEAR 1963

(In Millions of Dollars)

	Amount	Percent
Military Personnel.....	3,486	24.9
Operations and Maintenance.....	3,058	21.8
Major Procurement.....	6,581	47.0
Research, Development, Test and Evaluation.....	1,429	10.2
Military Construction.....	196	1.4
Revolving and Management Funds.....	-745	-5.3
	14,005	100.0

Military personnel costs were primarily for pay and allowances and supported an average strength on active duty of about 663,000 officers and men of the Navy and about 190,000 officers and men of the Marine Corps.

Expenditures for operation and maintenance comprise costs of maintaining and operating the fleet, including aviation and Fleet Marine Force units, as well as the Navy shore establishment. These funds supported about 857 ships in the active fleet, 7,165 Navy and Marine Corps aircraft, and 3 Marine division/wing teams.

More funds were expended for major procurement than for any other purpose. Approximately 35 percent of procurement expenditures were for new aircraft (2.3 billion). Expenditures for shipbuilding amounted to 38 percent of the total (\$2.5 billion), while missile expenditures were 11 percent of the total (\$718 million).

Research, development, test, and evaluation expenditures were concentrated in the general areas of antisubmarine warfare, missiles, ship design, and electronics. These expenditures also supported a vigorous program of basic research, including an expanded emphasis on oceanography.

The revolving fund transactions for the year reflect the operations of the Navy and Marine Corps Stock Funds and the Navy Industrial Fund. Due to a change in procedure requiring advance payments for work financed by Industrial Funds, they show a nonrecurring gain for the year.

III. Navy and Marine Corps Operations

Cuba

The Cuban crisis, which occurred in October–November 1962, was both a major challenge to a variety of fleet units and a vivid demonstration of the Navy's ability to meet such challenges successfully.

A major activity carried on in support of this operation was the location, inspection, and diversion of Cuba-bound merchant shipping carrying certain excluded cargo. In accomplishing this task, naval aircraft flew approximately 6,000,000 miles and fleet units steamed approximately 780,000 miles, with each of the eight aircraft carriers utilized in the operation steaming more than 10,000 miles.

During the crisis, Navy photographic units were particularly active, monitoring the military activities of Cuban and Soviet forces. A new Navy-developed aerial camera was used by both the Navy and the Air Force in the highly effective photo-reconnaissance over the island; and the Naval Photographic Interpretation Center provided processing and photo-interpretation services that were vitally important to the hour-by-hour evaluation of the military buildup.

The quarantine operation provided the most demanding test of the Navy's Antisubmarine Warfare (ASW) capabilities since World War II. It was also the first large-scale test of our ASW capability against modern submarines of the U.S.S.R.

In evident anticipation of possible United States reaction to the emplacement of offensive missiles in Cuba, the U.S.S.R. deployed a number of modern, conventionally powered submarines in the general area. During subsequent operations six of these submarines were photographed and identified by U.S. naval forces. So far as can be determined, no Russian submarines committed to the Cuban operation escaped detection and tracking. By tracking these submarines—and by being capable of destroying them if necessary—the Navy denied their effective use to the U.S.S.R.

The crisis also provided a particularly striking demonstration of the responsiveness of Marine forces. Guantanamo was rapidly reinforced by combat-ready units deploying simultaneously from three different locations. Five thousand Marines, completely equipped and ready to fight, were moved into position by sea and by air in 48 hours to augment the Guantanamo garrison. The Caribbean contingency

force which is constantly deployed in that area for such purposes landed a battalion by sea. A second battalion was airlifted from Cherry Point, N.C., employing Navy and Marine transport aircraft. A third battalion was airlifted from Camp Pendleton, Calif., by Military Air Transport Service (MATS) aircraft. Appropriate supporting arms accompanied these combat units. The rapid and immediate introduction of these combat-ready forces into Guantanamo assured the defense of that key base during the following days and weeks of the crisis.

In similar fashion, a Marine air-ground amphibious striking force was quickly assembled for offensive operations. Elements which had been deployed to the Puerto Rico area for a training exercise joined other combat units of the Marine division/wing team outloading from the Cherry Point-Camp Lejeune complex on the east coast. Additionally, a Marine expeditionary brigade of more than 10,000 troops embarked from west coast ports in less than 96 hours and sailed to join the east coast division/wing team in the Caribbean area. This Marine air-ground striking force was fully prepared to execute its assigned assault missions at any time throughout the crisis period. Its presence in the Caribbean area provided ample testimony of United States intent to take any action required.

Finally, it should be stressed that the Cuban quarantine was undertaken as a legal operation within the spirit of international law. The Navy's role included both participation in the drafting of the quarantine proclamation and in its legal implementation.

Vietnam

The Marine task unit which was deployed to Vietnam in April 1962 remained in that country during this period. A medium helicopter squadron formed the nucleus of the task unit; its support was drawn mainly from a detachment furnished by a Marine air base squadron. Four squadrons of the 1st Marine Aircraft Wing have rotated through this assignment thus far. Initial operations were conducted in the Mekong Delta area during the period April-September 1962, with the task unit based at Soc Trang. Since September 1962 the task unit has supported operations from Danang near the 17th parallel dividing North and South Vietnam. This relocation was made to exploit the superior lift capability of the Marine helicopters in mountainous terrain.

Favorable reaction to the work of two Seabee technical assistance teams in South Vietnam has prompted the Agency for International Development of the Department of State to request increased use of such units in provincial rehabilitation operations in that country. This work would be concerned with concentrated hamlet development,

and would involve hamlet-to-village road and bridge building, well drilling and water supply, irrigation and dam construction, and strengthening of provincial public works operations and their heavy equipment utilization.

Thailand

In May 1962 a Marine expeditionary unit from the 3d Marine Division/1st Marine Aircraft Wing Team in the Far East was deployed to Thailand when military action heightened in Laos and U.S. forces were requested by the Royal Government of Thailand. This unit consisted of a battalion landing team, a helicopter squadron, a fixed-wing jet attack squadron, and a support group, which included elements of a Navy mobile construction battalion. It was based at Udorn. The unit was withdrawn on August 6, 1962.

Space

Major advances were recorded in Navy space programs during the year, which saw the U.S. Naval Space Surveillance System (NAVSPASUR) celebrate its second anniversary. One of the most important functions of NAVSPASUR is the detection of new satellites, especially those which are nonradiating and unannounced, passing over the North American continent. NAVSPASUR performs this detection and surveillance function by cataloging and observing predicted penetrations of its sensor network. Unpredicted penetrations immediately signal the presence of a new orbiting object, and a data processing system programed with 130,000 computer instructions provides orbit information automatically in 3 to 5 seconds after detection.

A study was completed on a satellite system to gather oceanographic data from buoys, ships, and an ice-reconnaissance satellite. Study results indicate that such a system is within present technological capabilities.

At year-end, ANNA, the geodetic satellite, was providing data to be used in positioning navigation (LORAN-C) stations on specified Pacific islands.

The possibility of space-borne radar for ocean surveillance, heretofore limited because of excessive weight and power requirements of known radar techniques, is again under active study, due to technological advances achieved during the year.

During fiscal year 1963, the Navy supported recovery requirements for two manned space missions—MA-8 (Schirra) and MA-9 (Cooper). MA-8 was a six-orbit mission with recovery near Midway Island in the Pacific. To allow for all contingencies of recovery, a total of 28 ships, 49 fixed-wing aircraft, and 19 helicopters participated in MA-8. MA-9, a 22-orbit flight, also with recovery in the Pacific,

required a total of 28 ships and 61 fixed- and rotary-wing aircraft. Each mission utilized the services of approximately 18,000 supporting naval personnel. Costs incurred by the Navy in support of MA-8 were \$2.8 million, of which but \$0.9 million was reimbursed by the National Aeronautics and Space Administration. As of this writing, although the total costs for MA-9 have not yet been determined, preliminary estimates indicate that the nonreimbursed naval expenditures will far exceed those for MA-8. These expenditures were absorbed by the Navy at the expense of authorized, planned, and budgeted Navy requirements.

Guam

Guam suffered greatly from the destructive effects of typhoon Karen, which struck the island on November 11, 1962. Sustained winds of 150 knots, with gusts in excess of 185 knots (207 m.p.h.), were associated with this storm.

Karen was evaluated as a typhoon on November 8 and was kept under close surveillance. Originally expected to pass north of the island, Karen abruptly veered toward Guam. However, the precautionary measures taken by Commander Naval Forces, Marianas, prevented heavy loss of life. Nine members of the civilian populace were killed and there were many injuries. Civilian dwellings were severely damaged, leaving some 30,000 local inhabitants homeless. Public buildings were also hard hit, with schools, Guam Memorial Hospital, and legislative and administrative structures heavily damaged or demolished.

Although there were no fatalities to U.S. military personnel or their dependents, naval installations suffered considerable damage. The primary power system for the island was inoperative, most transmission lines being down, and the resultant effect on water, sewerage, communications, and security systems was disastrous. Ninety-eight percent of the temporary buildings, including terminal facilities at the Naval Air Station, Agana, were destroyed. Damage to shops, buildings, wharves, and harbor craft was widespread. A 100,000-ton floating drydock, with 56 anchors and other moorings, was moved approximately 500 feet by the storm.

The instant, massive response by forces coordinated by the Commander in Chief, Pacific Fleet, made relief supplies and services available as required. In a little more than 2 days, 40 aircraft lifted nearly 1,000,000 pounds of cargo and more than 700 personnel. In addition, Navy ships transported provisions, personnel, additional supplies, and equipment.

As a result of 24-hour workdays, the tremendous job of restoring operations was completed in an amazingly short time, despite the

difficult tasks which faced assisting forces. Clearing the harbor of sunken craft; feeding and housing thousands of civilians; assisting in maintaining law and order, as requested by the Governor; restoration of navigational aids (both surface and air); provision of clothing and food to the civilian populace; establishment of hospital and other medical facilities; and provision of materials to permit the local population to erect temporary shelters were all accomplished with speed, sympathy, and understanding.

On December 5, 1962, the Guam Legislature passed a resolution expressing the deep and abiding gratitude of the people of Guam for the assistance given in meeting the emergency and in the rehabilitation of the island.

Combined Exercises

Combined exercises (i.e. exercises in which more than one country participates) continued to form an important portion of the Navy's fiscal year 1963 schedules. These combined exercises generally fall into two categories: Those which are arranged directly between the U.S. Navy and the navies of friendly foreign countries and those which are scheduled, planned, and conducted by the military components of treaty organizations of which the United States is a member. Typical of many exercises in the former category was Operation UNITAS IV, which was designed to provide an opportunity for the Navy to conduct antisubmarine warfare operations with South American naval forces. During this operation, U.S. Navy units circumnavigated the South American continent and conducted operations with forces from eight South American countries en route between various ports. During Exercise KHARGEX VI in the Persian Gulf, two U.S. ships operated with naval forces of the United Kingdom and Iran to develop proficiency in combined operational procedures.

In most cases, the naval forces involved in these exercises were relatively small, but since the Navy conducted combined exercises with virtually every friendly foreign country that maintains a navy, the total expenditure of effort was tremendous.

North Atlantic Treaty Organization (NATO) maritime exercises included RIPTIDE III, scheduled by the Supreme Allied Commander Atlantic (SACLANT) to improve readiness in offensive warfare, air defense, and antisubmarine warfare. Two attack carriers, two heavy cruisers, and numerous other units of the U.S. Navy participated with major forces of the United Kingdom, France, and Portugal in this exercise in the western Atlantic. Another NATO exercise, FISH PLAY SEVEN, involving forces from four NATO

member nations together with units of the U.S. Navy, was designed to evaluate SACLANT doctrine.

The *Central Treaty Organization* has scheduled the next major maritime exercise to be conducted in the fall of 1964. One of the most significant exercises conducted during this period, MIDLINK IV, included ships of the U.S. and Iranian navies, together with ships and aircraft from Pakistan and the United Kingdom. Operations were conducted in the northeastern area of the Persian Gulf and emphasized the protection of trade and sea communications.

South East Asia Treaty Organization (SEATO) exercises included two types of operations. JUNGLE DRUM II involved Navy and Marine units and forces from Thailand in an amphibious training exercise in a SEATO setting. SEA SERPENT included Navy units and those of six other SEATO member nations in a maritime exercise in the South China Sea, Manila/Subic area.

Korea—Exercise FLAGPOLE, a combined U.S.-Korean amphibious exercise, was conducted in June 1963 in the Pohang area of Korea. The landing force was the 11th Combined Marine Expeditionary Brigade, built around a regimental landing team from the 3d Marine Division, and a regimental landing team of the Republic of Korea Marine Corps, plus air units from the 1st Marine Aircraft Wing. The exercise was similar to those which are conducted periodically by Seventh Fleet units with armed forces of friendly nations in the Far East and are designed to improve proficiency in amphibious operations and maintain close working relationships between allied nations.

People-to-People Program

During fiscal year 1963 the Navy has continued to provide strong support, ashore and afloat, at home and overseas, to the People-to-People Program.

Through unique briefing techniques developed under the Chief of Naval Personnel, the crews of many of our ships deploying overseas and Naval Academy midshipmen embarking on summer cruises were strongly motivated to play an active and rewarding role through person-to-person communication with those they met in foreign ports of call. To date, briefings have been limited to ships deploying from east coast ports. The overseasmanship training presentations have been highly successful and plans call for expanding this program to include briefing ships deploying from west coast ports.

As has been demonstrated in the Sixth Fleet, Seventh Fleet, SOLANT, UNITAS, northern European cruises, and others, distribution of good-will/relief type items by naval units has done much to achieve the objectives of the People-to-People effort. Through the

Navy's Project HANDCLASP program during fiscal year 1963, over 5,000,000 pounds of material, including clothing, medical supplies, textbooks, basic school materials, sports equipment, toys, etc., were distributed to worthy recipients in foreign ports.

A number of schools, orphanages, and other charitable institutions in ports of call throughout the world have been refurbished by volunteer work parties from ships, using material obtained through the Project HANDCLASP program. This approach to the People-to-People Program has been carried on by Navy men in the Sixth and Seventh Fleets as well as the South Atlantic task forces to Africa and South America and has created a reservoir of lasting good will with virtually negligible expenditure of Navy funds.

A particularly significant contribution to this program has been made in the Far East by Marines and Navy medical personnel. In Okinawa, in the Philippines, and in other areas where they have been stationed or operating, naval personnel have maintained constructive contact with indigenous people well beyond the immediate vicinity of ports of call.

New friends have been made and old friendships strengthened through such examples of helpfulness, respect, and understanding for others shown by our naval personnel.

IV. Increased Capability

During fiscal year 1963 the Navy significantly increased its capability to deal instantaneously with any threat to our national security. This was accomplished by the acquisition of new ships, aircraft, and weapons; conversion and modernization of existing assets; more highly trained personnel; improved operating methods; and an increased knowledge of relevant technologies.

The new equipment developed for the fleet is far superior in performance to anything previously available—but it is also more complex and far more expensive. Utilizing these technological advances to their fullest extent, consistent with its goals of readiness, flexibility, and economy, has been a major managerial mission of the Department of the Navy in fiscal year 1963.

Ships

The new and converted ships which joined the fleet in fiscal year 1963 are impressive indications of the Navy's enhanced capability to perform its major missions. The following tables identify these ships by type.

NEW CONSTRUCTION COMPLETED IN FISCAL YEAR 1963	
DESTROYERS	
<i>Bainbridge</i>	DLG (N) 25
<i>Leahy</i>	DLG 16
<i>Yarnell</i>	DLG 17
<i>Barney</i>	DDG 6
<i>Hoel</i>	DDG 13
<i>Berkeley</i>	DDG 15
<i>Strauss</i>	DDG 16
<i>Semmes</i>	DDG 18
<i>Tattnall</i>	DDG 19
<i>Bronstein</i>	DE 1037
SUBMARINES	
<i>Lafayette</i>	SSB (N) 616
<i>Alexander Hamilton</i>	SSB (N) 617
<i>Thomas Jefferson</i>	SSB (N) 618
<i>Plunger</i>	SS (N) 595
SUBMARINE TENDERS	
<i>Hunley</i>	AS 31
AMPHIBIOUS SHIPS	
<i>Raleigh</i>	LPD 1
OCEANOGRAPHIC RESEARCH SHIPS	
<i>R. D. Conrad</i>	AGOR 3
<i>J. N. Gillis</i>	AGOR 4
<i>Davis</i>	AGOR 5
REPAIR BARGES: (YRBM).....	7

SHIP CONVERSIONS COMPLETED IN FISCAL YEAR 1963

Cruisers.....	2
Destroyers (FRAM).....	13
Submarines.....	6

In addition to these ships which have already joined the fleet, there are a number of new types under development, and a number of improvements in ship characteristics have been developed which should markedly increase the Navy's capabilities.

New Types Under Development

Amphibious Craft—A new amphibian being developed is a landing craft, assault (LCA). Its mission will be to carry men and cargo from an offshore LSD or LPD through rough water, across difficult beaches and sand dunes, and inland over terrain normally encountered in offroad land operations. Gas turbines will propel the craft via propellers in water and by standard transmission and tracks on land.

A related effort is the development of new amphibians for the Marine Corps. Two hydrofoil amphibians (LVHX) neared completion. These high-speed cargo carriers will retract their foils and extend their wheels near the shoreline. Initial trials indicate that the concept will prove successful. Another approach to a high-speed amphibious cargo carrier is the LVW, a planing hull with retractable wheels. An experimental LVW began trials toward the end of fiscal year 1963.

High-Speed Craft—Work began on two fast motor gunboats (PGM), a type designed for patrol, surveillance, blockade, and similar missions in the U.S. Navy or indigenous foreign naval forces. Although small, they will have good sea-keeping qualities and powerful armament. A combined diesel and gas turbine propulsion plant will provide power both for long-range cruises at moderate speeds and for short-range high-speed operations.

High Point (PC(H)1) neared completion and promises to be highly successful—she exceeded her design speed of 45 knots during acceptance trials. Design of a 320-ton experimental hydrofoil (AGEH) was completed. Work on other hydrofoil craft—landing craft, amphibians, and experimental craft—proceeded rapidly. Construction of the air cushion craft SKMR 1 was completed and initial trials were generally very successful. SKMR 1 demonstrated speeds of over 60 knots, hover height of about 2 feet, and excellent handling.

Improvements in Ship Characteristics

Ship Quieting and Shock Hardening—Notable success is being achieved in designing ships to be quieter, both so they will be less

likely to betray their whereabouts and so they will be better able to detect the presence of a foe.

The results of several years of study are being utilized in current designs. For example, certain components have been singled out for special treatment so as to minimize the distance that their noise travels. Some components are being constructed so that they create less noise. The specifications of some new ships contain specific maximum noise limits. Devices which mask a ship's noise are being installed on some ships.

New propulsion systems that create less noise are being tried. For example, a contrarotating system turbine is being installed in *Jack* (SS(N) 605). Since this turbine can drive low-speed propellers efficiently without using reduction gears, it is expected to provide quieter propulsion than existing systems.

Another example: A pumpjet was developed for installation aboard the escort research ship (AGDE) after an experimental installation aboard *Witek* (DD 848) resulted in increased sonar effectiveness. The pumpjet, which is essentially a single-stage flow pump, replaces the propeller and reduces propulsion cavitation noise.

Fiscal year 1963 was also a critical year for "shock hardening" the fleets—increasing the ability of ship's equipment to continue functioning after sustaining severe shock.

For some time the Navy has been conducting tests in which high explosives are detonated at successively shorter distances from operational ships having modern equipment installed. These tests have revealed weaknesses, which were then eliminated. The lessons learned from these tests, and from other research on "shock hardening," are being used both in new designs and in appropriate modifications to existing ships.

The Navy is continuing to develop data on shock effects and is acquiring new facilities for this purpose. For example, toward the end of the year a contract was placed for a 2,600-foot-long "megaphone." This device will permit test of simulated nuclear blast effects using ordinary high explosives.

Submarine Characteristics

In fiscal year 1963 a new approach to the design of command and control systems for submarines was initiated. Called FRISCO, for Fast Reaction Integrated Submarine Control, it is a total approach involving the conception and development of all submarine command and control components as a single system. This approach is expected to eliminate overlapping, redundancy, mutual interference, and other inefficiencies in command and control, thereby creating a more

sensitive, responsive, and faster reacting submarine than any yet conceived.

Immediately after the loss of the *Thresher*, the Navy reviewed intensively all phases of the nuclear-powered submarine programs, including the design, construction, inspection, and overhaul of these ships. Although nothing was found which cast doubt on the basic soundness of the programs, lessons were learned and are being applied. For example, new ultrasonic inspection techniques that had just become practical were put into use to assure the integrity of sil-brazed, high-pressure piping systems.

Submarine design development continues. Construction of the deep-diving experimental submarine *Dolphin* (AG(SS) 555) got underway, as did the Phase IV conversion *Albacore* (AG(SS) 569). Recently developed silver-zinc storage batteries are being installed on *Albacore* and *Dolphin*. A silver-zinc battery can provide at least 3 times as much capacity per pound or cubic foot as can a lead-acid battery. With silver-zinc batteries, it becomes feasible for the nonnuclear-powered *Albacore* and *Dolphin* to conduct extended high-speed submerged operations.

Personnel

Recruitment

Consistent with the increased complexity and sophistication of its equipment, selectivity was the major factor stressed in the Navy's recruitment activities in fiscal year 1963. This can be seen clearly in the following statistics on the recruitment of enlisted personnel:

ENLISTED PERSONNEL RECRUITMENT, FISCAL YEAR 1963

	1963	1962
Total Recruited (First enlistments)-----	85,265	107,718
Categorized as Trainable-----	70.5%	65.5%
Mental Group IV (Lowest)-----	4.9%	11.5%

This same trend was also apparent in the recruitment of officer personnel, as shown in the following table. Smaller numbers of officers were recruited, consistent with the establishment of more stringent criteria of acceptability. The large increase in the regular NROTC program came about because of favorable retention experience with this group, coupled with the desire to have officers of high technical competence.

The large increase in the input of the officer candidate school at Newport, R.I., arose as a result of the Berlin crisis and the increased draft following this crisis.

Officer Personnel Inputs to Training Programs

	1963	1962
Aviation Officer Cadet Program.....	570	635
Naval Aviation Cadet Program.....	503	562
Naval Aviation Officer Candidate.....	473	607
Regular NROTC Program.....	2,281	1,685
OCS: Newport.....	4,971	4,248
Reserve Officer Candidate Program.....	483	852
U.S. Naval Academy.....	1,278	1,289
	10,559	9,878

Improved Officer Training

Postgraduate School—The Naval Postgraduate School was reorganized for the purpose of producing a more closely knit organization under the direct control of the school's superintendent. The three component schools—namely, the Engineering School, the General Line and Naval Science School, and the Management School—were merged into a single Naval Postgraduate School with a strengthened academic organization.

The requirement for more officers with specialized advanced education and the revitalized subspecialty concept have placed increased emphasis on postgraduate training. Under the Educational Group concept, instituted in fiscal year 1961, increased numbers of officers have been selected to attend the Navy's postgraduate school at Monterey, Calif. This large input has necessitated two convening dates (March and August).

Early selection of midshipmen for postgraduate instruction is a new program which became effective with the 1963 Naval Academy and NROTC graduating classes. The objective of the program is to earmark at an early date potential candidates for assignment to the Navy Postgraduate Program, upon completion of their first tour of sea duty. The program is designed primarily for midshipmen (first class) who are prospective unrestricted line officers. Up to 100 Naval Academy midshipmen will be selected each year and 2 candidates from each of the 53 NROTC units.

Subspecialty Concept—To meet the increasing demands for unrestricted line officers with advanced training and experience in a particular field, the subspecialty concept for unrestricted line officers was formally recognized and is being put into effect. Officers' assignments will be channeled to provide for repeated tours in their subspecialty area, each with greater challenge and responsibility. The

subspecialty concept will not interfere with the professional development of the career naval officer, whose specialty will remain naval warfare and command at sea.

Counterinsurgency Training—Because of increasing requirements for officers with backgrounds in counterinsurgency, education and training in this area is receiving greater emphasis in most officer programs throughout the Navy. Instruction is being offered on three levels—orientation, undergraduate, and graduate. In addition, functional training is being provided to personnel being assigned to selected overseas duty stations.

This subject was also given particular emphasis in Marine Corps schools. The Marine Corps school system provides instruction in the theory and practice of both counterinsurgency and counter guerrilla warfare. Senior officers received a course of instruction in planning and conducting counterinsurgency operations. In addition, Fleet Marine Force units continued to conduct field training in counter guerrilla warfare without sacrificing training in their amphibious specialty.

Improved Utilization and Retention of Skilled Enlisted Personnel

Selective Training and Retention (STAR) Program—The STAR Program, initiated in September 1960, is designed to fulfill two primary requirements—increase first term reenlistments and allow early career identification of first term enlisted personnel, particularly in critically undermanned ratings. As in previous years, the fiscal year 1963 program provided for guaranteed formal school training and specific advancement benefits in return for early reenlistment for a period of time which will total 7 or more years of service. Effective October 1, 1962, the program was limited to personnel serving in their second or third years of naval service. This change makes a 6-year reenlistment mandatory and more fully meets the early career identification facet of the program. In fiscal year 1963 there were 4,206 reenlistments. Of the 3,131 petty officers and designated strikers included, 2,550 (or 81 percent) were in critically undermanned ratings. Of the 4,206 total, 4,079 (97 percent) were 6-year reenlistments, which provide the opportunity for the greatest return on the training investment, in addition to the great career potential inherent in the long-term STAR reenlistment.

Selective Conversion and Retention (SCORE) Program—The SCORE Program, initiated in November 1961, is designed to improve the career strength posture of all Navy ratings by providing a means whereby personnel in overmanned ratings can convert to critically undermanned ratings. The goal of this program is quality rather than quantity. Reenlistment or extension under SCORE is authorized

only if interviews and study of personnel records indicate a high probability of successful conversion.

Personnel with a minimum of 2 years of active naval service and a maximum of 12 years of active military service and in pay grades E-3 (designated strikers), E-4, and E-5 are eligible. These personnel must reenlist for 6 years or agree to extend a present enlistment to total 6 years' remaining obligated service.

Under SCORE, 2,254 personnel have reenlisted or extended since November 1961. Of this total, 1,356 (60.2 percent) desired conversion to the various critical electronic ratings.

Missile Personnel—As part of the establishment of the Special Navy Task Force for Surface Missile Systems, a group consisting of three officers was established to coordinate personnel aspects of the missile system.

This group was indicative of a new approach to the management of the enlisted personnel problem associated with a particular program. It is yielding significant results. Considerable improvement has been made in the manning of the missile systems. In addition, there is promise of a long-term solution to the low rate of reenlistment within this particular group of skills. The approach consists of accurate identification of skills in inventory, machine projection of the inventory and planned inputs, careful review of requirements, and requiring personnel receiving advanced training to obligate themselves for a total of at least 6 years in their first enlistments compared with the normal 4 years. Accepting only 6-year obligors reduces annual training requirements by approximately 40 percent.

Improved Instructional Materials and Facilities—Of the 1,178 different courses and curricula required for Navy training during fiscal year 1963, approximately 20 percent required revision to maintain pace with new developments. Ten percent were newly developed for training on new equipments and procedures.

Over 60 new and completely revised training manuals were prepared and published for use in various Navy training programs. The efficiency of operation of the two Navy Training Publications Centers was improved in terms of both quantity and quality of their output, and the preparation of current training publications reached an all-time high.

The officer and enlisted correspondence course programs continue to be the largest single training programs in the Navy. Enrollments during fiscal year 1963 exceeded 800,000. New courses offered during the year included General Oceanography and Guided Missiles and Nuclear Weapons. Correspondence courses are used for both advancement in rating training of enlisted personnel and the promotion study program for officers.

In addition to improving its instructional materials, the Navy has been modernizing its training facilities to provide training in the new skills essential to today's Navy. During fiscal year 1963 the following activities underwent a change in status:

CHANGE IN STATUS OF TRAINING ACTIVITIES

Training Activities Under Construction

<i>Activity</i>	<i>Location</i>	<i>Scheduled to be operational</i>
FBM Training Center.....	Charleston, S.C.....	November 1963
Fleet Submarine Training Facility (ASW).	Pearl Harbor, Hawaii...	October 1964
FBM Submarine Training Facility.	Ford Island, Hawaii.....	October 1964
U.S. Naval Guided Missiles School.	Dam Neck, Va.....	November 1963

New Training Activities Opened

Guided Missile School.....	Mare Island, Calif.....	October 1962
Nuclear Power School.....	Bainbridge, Md.....	July 1962
TYPHON Missile Technician School.	Westinghouse, Baltimore, Md.	September 1963

Training Activities Disestablished

Nuclear Power Dept., Submarine School.	New London, Conn.
Guided Missiles School.....	Pomona, Calif.

Naval Reserve

Implementation of the recommendations of the Naval Reserve Evaluation Board started in fiscal year 1963. These recommendations, once fully implemented, will improve the posture of the Naval Reserve by effecting improvements in its administration, organization, and training. Strengthening of the ASW component, both air and surface, has brought about a corresponding improvement in the readiness of these forces through an improvement in on-board strength and extension of training time.

Marine Corps Reserve

The reorganization of the Marine Corps Reserve, effected on July 1, 1962, established the nucleus of a fourth Marine Division/Wing Team and provided the Marine Corps with increased flexibility and responsiveness to mobilization requirements of varying magnitude. This was enthusiastically received by Marine Corps Reserve units.

In addition to extensive training at bases within the United States, Marine Reservists, both air and ground, deployed outside the continental United States for the second consecutive year for their annual 2-week active duty training period. One Marine squadron, one infantry battalion, and five engineer units trained at Vieques, Puerto Rico.

Improved Safety

The downward trend in naval aircraft accidents and fatalities continued in fiscal year 1963, with a rate of 1.45 accidents per 10,000 flight hours—down 6.5 percent from the previous year. The 222 lives lost in naval aircraft during the year was the lowest number since 1949. Improvements in ejection seats and improved design, material, and maintenance contributed to the improvement in aviation safety. Similarly, explosives safety and general safety showed improvement during the year—there were no major explosives accidents within the operating forces or at production facilities.

Improved Service to Dependents

An important concern of the Navy is the welfare of the families of its personnel. The dedication and sacrifice of those who man the Navy's ships and planes is matched by those who wait their return.

Mindful of its responsibilities to dependents, the Navy in fiscal year 1963 made significant strides in the improvement of family housing. Family housing legislation for the year funded 2,194 new units at \$43.6 million. Of these units, 645 were in Alaska and at oversea sites. In addition to these new units, 1,088 units were scheduled for improvement and 2,121 units were acquired under the Wherry program, bringing the total to 19,217.

To further improve the level of dependents' housing, the Navy, as a first step, has reviewed and classified as substandard some 32,000 family housing units. Of the 6,500 units of public quarters designated inadequate, 4,200 were improved or eliminated. Approximately 3,900 units of Lanham Act housing and 5,700 units of non-Lanham Act housing were eliminated. Also, the Navy was allotted 400 units for the continental United States under the new Family Housing Leasing program. Thirty-seven units have been leased and negotiations are underway for the leasing of 363 units in the New York, Chicago, and Boston areas.

The lot of the Navy family is a nomadic life. The mobility of naval forces requires that families change their place of residence frequently. This makes the shipment of household goods an important naval matter. During fiscal year 1963, methods of transporting household goods and personal property of authorized Navy members were tested and improved. As an example, Navy's containerized mode of shipping household goods proved invaluable in connection with the evacuation of families from Guantanamo Bay during the Cuban crisis in the fall of 1962. Additionally, cross-servicing agreements have been negotiated with the other military Services to insure that convenient household goods offices are available to serve the Navy members.

In the field of dependent education, an additional dependents' school was established at Villefranche, France, and the program at Sangley Point, Philippines, was expanded to include grades 11 and 12. The high school at Iwakuni, Japan, gained accreditation from the North Central Association.

Weapons

Antisubmarine Warfare Programs

Our antisubmarine warfare programs continued to receive major attention, to counter the threat of long-range, inertially guided nuclear missiles launched from far-ranging, quiet, fast, and deep-running aggressor submarines. In the aggregate, antisubmarine warfare programs involve the development and production of a large number of items to detect, locate, classify, and destroy submarines. These include surface, air, and submarine-based detection and locating devices; fire-control systems; and explosive ordnance items such as rockets, mines, torpedoes, bombs, and depth charges. The combination of many of these elements provides adaptability to meet varying circumstances under which the threat may be encountered.

Surface Ship Antisubmarine Systems—At the end of the year, the drone antisubmarine helicopter (DASH) was already operational in the Pacific Fleet, and about to be introduced in the Atlantic Fleet. The remotely controlled helicopter can deliver torpedoes or nuclear depth charges to the immediate vicinity of an enemy submarine at the extreme limit of detection ranges; it can hover over or be made to pursue the most elusive of submarine targets; and, having executed its mission, return to its mother ship for reuse.

During the year, additional ships acquired anti-submarine rocket (ASROC) capability as improvements in reliability and performance continued. Like DASH, ASROC extends the range and effectiveness of surface-directed antisubmarine forces. It is a quick-reaction weapon, designed to destroy an enemy submarine before the submarine can attack, rapidly delivering either a torpedo or a depth charge to the immediate vicinity of the target.

Submarine Antisubmarine Systems—Progress continued in development of the SUBROC antisubmarine missile system, which is launched from submerged submarines.

The MK 45 antisubmarine torpedo (ASTOR) initial production deliveries began in fiscal year 1963. This torpedo is capable of destroying high-speed, deep-diving enemy submarines with high reliability. It can be carried by both conventional and nuclear-powered submarines.

Mines—A small quantity of the submarine-launched ASW moored mine, the MK 57-0, ordered in fiscal year 1962, was delivered during

the year and is being prepositioned for fleet use. Operational evaluation of this mine is proceeding satisfactorily and will be completed in November 1963. Initial procurements of the aircraft-laid bottom mines, MK 52 and 55, will be delivered to the fleet beginning in fiscal year 1964. Pilot production of another aircraft-laid moored antisubmarine mine was initiated, to provide the fleet with an effective mine for use against quiet, slow-moving submarines.

Aircraft Antisubmarine Weapon Systems—Navy aircraft play a major role in antisubmarine warfare, and throughout the year substantial advances were made in ASW aircraft programs.

The P-3A (P3V-1) Orion land-based patrol plane was introduced into the fleet in July 1962, on schedule; Board of Inspection and Survey trials were 7 months ahead of schedule. Four patrol squadrons, previously operating P-2/P-5 Neptune and Marlin patrol aircraft, were outfitted with P-3 aircraft, and the first scheduled deployment was made in May 1963. Fleet ASW capability was further enhanced by fleet introduction of the S-2E (S2F-3S) Tracker aircraft in August 1962. In addition to its JEZEBEL submarine detection equipment, the S-2E has significantly better navigation capability, within the contact area, during the localization and attack phase of ASW tactical operations. In fiscal year 1963 two operational squadrons were outfitted with S-2E aircraft and two additional squadrons were partially outfitted.

The Navy's SH-3A (HSS-2) Sea King antisubmarine helicopter operates in daylight, at night, or under instrument flight conditions; it is also capable of performing sea-rescue services and visual reconnaissance. It can operate from land or shipboard and, in an emergency, this boat-hulled helicopter can land and take off on the water. During the year, additional fleet squadrons were outfitted with this versatile aircraft.

Strike Warfare

Attack Aircraft—The last of the A-4C (A4D-2N) Skyhawk aircraft were delivered in December 1962. The A-4E (A4D-5) aircraft—an improved version of the A-4C, having increased payload and range capability—completed the required acceptance demonstrations and trials in October 1962 and was authorized for fleet release in November 1962. The A-4E aircraft are scheduled to deploy in operational air groups in December 1963. Added strike capabilities such as BULLPUP "B" missile, SHRIKE missile, and MK IV gun pods are programed for incorporation in the fiscal year 1963 aircraft.

Requests for proposals on a Visual Light Attack Aircraft (VAL) were released to interested contractors on June 29, 1963. The VAL will be a modernized version ("follow-on") of a light attack air-

craft and will provide additional load-carrying capability and increased range for combat situations that do not require all-weather capability.

The A-5A (A3J) Vigilante is the Navy's first supersonic, carrier-based, all-weather, heavy attack airplane. It is fully equipped with advanced avionics and navigation equipment, which gives it the versatility of delivering weapons at high or low altitudes at long ranges. A-5A squadrons are currently deployed on U.S.S. *Enterprise* and U.S.S. *Independence*. A tactical reconnaissance version of the A-5A, designated the RA-5C, is under development. This aircraft provides a multisensor reconnaissance system.

The versatile high-performance A-6A (A2F-1) Intruder, the first aircraft capable of tactical air support missions under all-weather conditions, joined the fleet during the year and is scheduled for extended carrier deployment early in fiscal year 1964. A prototype tactical electronic countermeasures (ECM) version was completed during the year, and flight tests are proceeding satisfactorily. The ECM version has been designated the EA-6A (A2F-1H).

Assault Aircraft—A heavy assault transport helicopter program was initiated in fiscal year 1963 for the Marine Corps. This helicopter, designated the CH-53A (HH-X), is a version of the Sikorsky Model S-64 "flying crane" sold to West Germany. The CH-53A will replace the CH-37C (HR2S-1) helicopter and will have twice the payload, increased speed, all-weather capability, and other technical improvements.

The CH-46A (HRB) Seaknight medium assault helicopter program is proceeding satisfactorily and fleet deliveries are scheduled to begin soon.

The UH-1E (HU-1E) Iroquois light assault support helicopter program was initiated in fiscal year 1962 to provide combat zone observation and reconnaissance, wire laying, command liaison, and light resupply of front lines. It can be easily converted to casualty evacuation.

Attack Aircraft Weapons—The BULLPUP missile inventory approximately doubled this year. Introduction of competitive procurement for the guidance and control unit, airframe package, and the liquid engine components of the AGM-12B (BULLPUP 7a) missile contributed to the continued downward trend in price of the weapon. The AGM-12C (BULLPUP 7b) scaled-up missile was released to production, with fleet introduction scheduled to coincide with availability of compatibly configured aircraft in January 1964. Development of an improved command guidance system for the missile was completed, which will result in enhanced accuracy and reduced pilot training requirements. Improved aircraft suspension components

were also developed, which will simplify and accelerate changes to and from the missile-carrying configuration. Progress continued in the development and evaluation of the Navy's SHRIKE missile (AGM-45A), which will also be used by the U.S. Air Force.

Development of WALLEYE, a free-fall air-to-surface weapon incorporating a new optical guidance system, has progressed rapidly. Several highly successful airdrops were made. Procurement of pilot production weapons for evaluation and fleet use is planned for the coming year.

Antiair Warfare Programs

Fighter Aircraft Systems—Fleet forces started extensive operational utilization of the F-4B (F4H-1) Phantom II weapon system during the year. In August 1962 the first F-4B Navy squadrons were shipboard-deployed, one to the Pacific and one to the Mediterranean, and the first operational Marine Corps squadron completed initial training.

The RF-4B (RF4H-1) is a reconnaissance version of the Navy/Marine F-4B for Marine Corps use. During the past year the RF-4B program has been in the planning and development stage. A contract for long leadtime items was signed in February 1963, and the fiscal year 1964 configuration has been established. The reconnaissance sensors of the RF-4B are common with those of the Air Force RF-4C and include a variety of optical framing and panoramic cameras, side-looking radar, and infrared reconnaissance systems.

Development of the supersonic F-111 (TFX) aircraft began under a letter contract. The Air Force is responsible for development and procurement of a single basic design that will meet the moderately differing requirements of both the Navy and the Air Force. This program will significantly increase the capability of existing fighter aircraft weapon systems. It is expected that a fixed-price, incentive-fee contract will be let for the aircraft in fiscal year 1964.

Development of the PHOENIX long-range air-to-air missile system for use with Navy's F-111B is proceeding under a cost-plus-incentive-fee contract. The F-111B/PHOENIX weapon system will ultimately become the major Navy air-launched, all-weather, antiair warfare weapon system and will eventually replace the F-4B1 SPARROW III weapon system.

The major achievement in the SPARROW III weapon system during the year was completion of development of the AAM-N-6b (air-to-air) missile. Delivery of SPARROW III-6b missiles to the fleet is expected to begin early in fiscal year 1964.

The SIDEWINDER 1C infrared (heat-seeking) missile began operational evaluation in March 1963, to be completed in January 1964.

Early Warning Aircraft—A laboratory installation of the E-2A Airborne Tactical Data System was completed at the Naval Missile Center in July 1962. This system is being used to conduct compatibility tests with the Naval Tactical Data System at Point Loma, Calif., and the Marine Tactical Data System at Santa Ana, Calif. Development of an overland detection capability began in November 1962; this program promises to provide the E-2A with a low-flyer detection capability.

Targets and Drones—The Q-2C Firebee target became fully operational at two additional activities, Utility Squadron Five and Naval Ordnance Test Station, China Lake, Calif.

The aero 43M reel, Center of Gravity (CG) launcher, TDU-22AB and 22B targets have successfully completed flight tests and were approved for production. Use of this equipment will give the F-8 aircraft a supersonic tow target capability.

Development of a lightweight battlefield surveillance drone to provide for an unsophisticated, rapidly responsive aerial photographic capability for ground commanders was continued by the Marine Corps during this period.

Support System Programs—Airfields in objective areas are of great importance to the Marine Landing Force. Heavy jet aircraft with high landing speeds normally require several thousand feet of concrete runway plus associated repair, maintenance, and refueling facilities. In order to overcome dependence on such fields, the Marine Corps is developing the Short Airfield for Tactical Support (SATS) in conjunction with the Bureau of Naval Weapons. It is intended that this portable airfield, 2,000 feet in length, complete with runway matting, catapult, arresting gear, fuel dispensing system, and all traffic control facilities, will become operational 72 hours after delivery of equipment to the SATS site. During this period there were three operational test sites established to expand testing under controlled conditions and to train eventual users. As a result of demonstrations to German naval and air force personnel, the system has been adopted by the Federal Republic of Germany, and negotiations are underway for an initial buy of several systems from the United States. All NATO nations were invited to the demonstrations held in Jagel, Germany, and representatives of 14 countries attended. A number of these countries, including France, Italy, The Netherlands, Great Britain, and Belgium, are considering adoption of the system. It is estimated that sales of SATS to NATO nations could amount to \$500 million annually for the next 2½ to 3 years.

Delivery of the Navy's newest utility helicopter started in December 1962. This rotary-wing aircraft, the Seasprite, UH-2A/B (HU2K-1), is providing improved speed, range, endurance, and navigation capabilities.

The T-39D Sabreliner twin-engine jet radar trainer is being evaluated at the Naval Air Test Center, Patuxent River, Md. This aircraft is equipped to train pilots and radar intelligence officers in advanced techniques of radar operations, scope interpretation, and aircraft intercept. The T-39D will become operational in the Training Command during the next year.

The fiscal year 1963 procurement programs for conventional expendable ordnance improved Navy readiness status, particularly in airborne weapons such as ZUNI rockets, bombs and chemical bombs, dispensers, and agents. Sea-Air-Land (SEAL) teams and construction battalion units were outfitted with M-14 rifles and equipment common to NATO and the Marine Corps, to provide logistic compatibility.

Procurement of conventional ammunition, as well as inventory and distribution control, is well established at the Ordnance Supply Office, Mechanicsburg, Pa. Logistic controls have continued to provide improved service to the fleet. With minor exceptions, procurements have been by competitive bid.

During this period the Marine Tactical Data System (MTDS) test complex was assembled for the first time as a complete system. System tests to include its associated new radar equipments and compatibility with Navy and Army systems will continue.

Surface Missile Systems—The Special Navy Task Force for Surface Missile Systems has completed 1 year of activity in aggressive prosecution of a program to improve the military capability of TERRIER, TARTAR, and TALOS, and to speed the evaluation of the medium-range TYPHON system. In May 1963, the Naval Ship Missile Systems Engineering Station was established at Port Huemene, Calif., to provide technical and engineering assistance to the Special Navy Task Force for Surface Missile Systems and the Bureaus of Naval Weapons and Ships.

The extended-range TERRIER, developed during the year, will be delivered to the fleet starting in the first half of fiscal year 1964.

Evaluation of the TALOS 6c1 missile was completed in the second quarter of fiscal year 1963.

The TYPHON weapon systems was scheduled to be tested as a prototype system in the U.S.S. *Norton Sound* (AVM-1), prior to later decisions as to its future. Detailed plans were formulated to evaluate the capability of the system in the *Norton Sound*.

Facilities

The major theme of the 1963 facilities program was addition of vitally necessary facilities at selected installations, coupled with stringent economy in facilities operation and maintenance.

Cost of facilities completed during the previous year totaled \$235 million, with an additional group of projects amounting to \$275 million begun. The facilities completed were primarily for research, training, communications, and the POLARIS missile system.

Among the major construction projects sponsored by the Navy in fiscal year 1963 were the following:

1. Modernization of drydocks for POLARIS submarines.
2. Naval Hospital, Long Beach, Calif.
3. Typhoon-proof construction for Marines on Okinawa.
4. Typhoon-proof construction on Guam.
5. Marine Corps rifle ranges and personnel facilities at Camp Pendleton, Calif.
6. Rehabilitation of Bancroft Hall, U.S. Naval Academy.
7. Naval Communication Facility, Pacific.
8. Improvement to Power System, Guam.
9. School of Aviation Medicine, Pensacola, Fla.
10. Rocket Research Laboratory, Rocket City, W. Va.
11. General Purpose Laboratory, Naval Research Laboratory, Washington, D.C.

Operations and Maintenance Program

Consolidation of public works functions in naval complexes is continuing, and 10 were approved in fiscal year 1963. A study to pinpoint benefits of such consolidations, made at the Public Works Center, Norfolk, Va., disclosed that decreases in personnel, equipment, and facilities produced an annual savings of \$800,000. The Chief of Naval Operations noted that there "appeared to be an enhancement of service and support, both in effectiveness and quality"

Electric power systems at 100 naval communications activities were studied for deficiencies. Data obtained will be used to improve reliability of communications. Excellent progress was made in changing over to automatic local and long-distance direct-dialing telephone equipment at major shore installations.

An OSD task force is adapting much of the Navy's transportation and maintenance program for application to all the Services.

The Marine Corps Facilities Planning System, which has been in effect during fiscal year 1963, has produced refined data which are determining the best use of existing facilities to fulfill basic facilities requirements. These data are also disclosing the minimum new or replacement facilities required, and, at the same time, are permitting determination of those existing facilities not required by the peacetime mission.

Increased emphasis was placed upon the Marine Corps Facilities Maintenance Program. This program utilizes the application of con-

trolled maintenance standards to provide effective maintenance of Marine Corps facilities; for control of personnel, funds, and decision by local activity commands; and for the guidance of activities by Headquarters, Marine Corps.

Missile Ranges

Facilities for the firing, tracking, control, and targeting of missiles are vitally important to missile and space programs. Launching rates at the Point Arguello/Vandenberg complex of the Pacific Missile Range (PMR) tripled during the past year, and additional communications, range safety, and tracking provisions were required to meet the rapidly growing need for operational test facilities.

On July 1, 1963, appropriate facilities in the Caribbean were consolidated into the Atlantic Fleet Weapons Range (AFWR). During the year, the height-finding and surveillance radar capabilities of this range were substantially increased to meet expanded requirements of the Atlantic Fleet. These facilities were used for more than 300 missile firings during the year.

Studies

In this day of advanced technology, the acquisition of resources for fulfilling military requirements involves large financial outlays. Thus military decisions are in fact economic decisions, and the decision maker needs a method to choose the most effective for the least cost. One method recently evolved is the cost-effectiveness study. This is an analytical process that examines objectives and compares alternatives, using economic criteria for choosing the most efficient.

The Navy study effort has been oriented to be in consonance with the integrated planning and programing system of the Department of Defense and to assist the Navy in determining the forces and required logistic support necessary to carry out assigned missions.

The Navy's study effort is carried on by the Office of Naval Warfare Analyses, by the Institute of Naval Studies, and by the Naval Analysis Group of the Office of Naval Research. This latter organization is an integrated group of civilian personnel and assigned Navy and Marine Corps officers.

The following types of studies are representative of the Navy effort and will be conducted and updated on an annual basis:

- (1) Naval warfare systems studies to assess fully the contribution of science and technology to the increased ability of naval forces of the future.

- (2) Force level studies to examine the kinds, numbers, and mixes of forces required to perform the missions assigned to the Navy and the Marine Corps.

(3) Fleet support studies to examine the procurement programs needed to modernize, equip, and support both existing and future forces.

(4) Personnel and logistic studies to examine the manpower, operating, training, and maintenance support levels required to maintain adequate combat readiness.

Material Readiness

Fleet Maintenance

The dramatic increase in both cost and complexity of military hardware has made the problem of maintenance a critical one. The Chief of Naval Operations has therefore initiated a program to assist in the solution of basic problems of maintenance management in the Fleets. The elements of this over-all program include:

(1) Installation of a standard system of programing and control of maintenance of ships and aircraft.

(2) Development of a data collection and analysis system to measure effectiveness of maintenance and material support and to provide the basis for efficient management of resources.

A standard system for shipboard maintenance management is now installed in the engineering departments of approximately 110 destroyers in the Atlantic and Pacific Fleets. The system has been highly successful as a management tool at the ship level for accomplishment of maintenance. Its reception by fleet personnel has been enthusiastic. This system is now being developed for all ship departments and for all ship classes. The present goal is to complete installation of the system fleetwide by the end of 1965 with an interim target of 90 percent by September 1964.

Data collection, analysis, and distribution are an essential aspect of maintenance management. A comprehensive system is being developed which is basically an adaptation to naval use of a preexisting Air Force system (AFM 66-1). It will provide all levels of management with a comprehensive range of useful data regarding:

(1) Performance, quality, and control of the total maintenance effort.

(2) Manpower utilization and skill requirements.

(3) Maintainability and reliability performance of equipments and systems.

(4) Effectiveness of supply support of maintenance.

(5) Material usage and cost.

The rising costs of maintenance of new, sophisticated hardware is reflected in the distress being experienced by the operating forces in the area of supplies and equipment. Cost of repair parts consumed by new systems (missiles and electronics) is averaging 3 to 4 times the

support costs of equipments that are being displaced. "Level funding," a practice of many years' standing, has required consumption of reserves, resulting in reduced readiness. A solution to the problem of satisfactory justification for the increased financial support required is provided in the maintenance and material management program discussed above.

Funding for overhauls and alterations in 1963 exceeded comparable funding in 1962. In respect to overhauls, the anticipated workload has been higher and funding had been programed accordingly. Alteration costs (capital improvements) for ships increased, not only because of the large numbers of ships which fell due for overhaul in the period, but also because of rising costs of new hardware and of increasing demand for more and more of the complex, sophisticated, and expensive equipments which are within the realm of technical feasibility.

Mobile Logistic Support

Mobile logistic support forces provide a fleet of great endurance, mobility, and flexibility, with minimum dependence on shore bases. Two principal types of ships which perform mobile logistic support functions are the underway replenishment group (AE, AO, AF, etc.) and the mobile support group (AD, AS, AR, etc.). Aircraft are also employed in mobile logistic support, with arrangements just completed to obtain an improved aircraft type.

Underway Replenishment—Continuing modifications of combat and support ships permit increasing use of helicopters in underway replenishment to supplement direct-connected transfer, which continues to be the basic technique for this important operation. A missile-underway replenishment system under development, known as the FAST system, is expected to become operational in fiscal year 1964. In addition, U.S.S. *Mars* (AFS 1), the first combat store ship, was launched June 15, 1963, at San Diego, Calif. The AFS will provide a new, versatile, one-stop replenishment capability with its ability to provide dry stores, ship repair parts, aviation repair parts, and refrigerated cargo.

Beginning July 1, 1963, a procedure for centrally computing the AKS Fleet Issue Load List (FILL) will enable the fleet to deal with just one office, instead of several, in the development of the FILL.

Important alterations have been made in numerous combatant ships and oilers to speed up and improve fueling at sea. A number of improvements have been effected to speed up (through mechanization) AF and AKS cargo breakouts. AE missile storage has also been improved.

Supply Afloat—The mechanized supply-afloat procedures program has progressed to the extent where it now encompasses 20 major ships

of the mobile support force. In addition, key punch machines have been installed on all Atlantic and Pacific Fleet destroyer tenders as well as on all Atlantic Fleet cruisers. These improvements in data processing complement the Military Standard Requisitioning and Issue Procedures (MILSTRIP), provide for more effective inventory control afloat, and contribute towards the enhancement of the material readiness condition afloat.

A major improvement in the Fleet Ballistic Missile submarine tenders' data transmission and receiving capabilities has been made possible through the installation of an Automatic Digital Network (AUTODIN). Although basically designed and engineered for shore installations, the AUTODIN Communications System is capable of providing the speed and error-free transmission necessary to support a modern weapon system such as POLARIS. This system provides direct exchange of information with major inventory control and stock points for requisition submission, clarification of material requirements, and furnishing of timely status information.

The many Federal stock catalogs distributed afloat have proven impractical for shipboard use due to bulkiness, differing format, inclusion of data not required afloat, and difficulty in maintenance. As a result, the task of ordering supplies aboard ship became extremely cumbersome. To solve these problems, the Fleet Oriented Consolidated Stock List (FOCSL) was developed for distribution to fleet units during fiscal year 1963. Advantages accruing to fleet supply operations include reduced man-hour requirements, reduced shelf space for catalog storage, and improved requisition accuracy.

Marine Corps Material Readiness

Supplies and equipment necessary for the combat support of the Fleet Marine Forces during the initial phases of any conflict are maintained in a state of readiness by using units and Navy and Marine Corps supply activities. During the Cuban crisis, the effectiveness of this concept was reaffirmed when the materiel was released from its protected status by the Commandant of the Marine Corps and the Chief of Naval Operations and withdrawn from storage by the units scheduled to deploy. Upon return of the deployed forces, this materiel was returned to its protected status.

Significant revisions were made in the procedures for supporting the new items of equipment introduced into the Marine Corps. In order to attain increased accuracy and timeliness of budgeting information, Headquarters, Marine Corps now performs the budgeting of funds for the initial stocking requirements of repair parts and provides units with estimates of the first year's consumption of repair parts. Additional measures are being taken to insure the availability of adequate repair parts, support equipment, operators, and mainte-

nance personnel prior to placing the new equipment into service in the using units.

One of the most important advances in the logistic field during this period was the completion, in March 1963, of a comprehensive review of the procurement program for major items of equipment. This review was conducted for the purpose of:

(1) Insuring that the significant funds appropriated during fiscal years 1962-64 for the procurement of Marine Corps equipment was being expended for appropriate types of equipment in proper quantities in order to assure maximum materiel readiness.

(2) Providing a firm base for preparation of the fiscal year 1965 procurement budget request and adjustment of the Department of Defense Five Year Force Structure and Financial Program.

Military Sea Transportation Service (MSTS)

Military Sea Transportation Service operated a nucleus fleet of 124 ships (augmented by the charter of the U.S.-flag commercial shipping) to provide sealift of passengers, dry cargo, and petroleum for the Department of Defense and for special project services. These ships moved more than 12 million measurement tons of dry cargo, 17 million long tons of petroleum, and 400,000 passengers.

Tankers made 22 voyages to northeast Arctic bases, delivering 284,380 long tons of petroleum, and provided support to Operation DEEP FREEZE, as did MSTS dry cargo ships in both areas.

Fifty percent of coal and coke procurement in the United States for our forces in Germany was lifted by MSTS ships.

Navy Subsistence

New concepts in food preservation enable ships to remain at sea for extended periods of time, save valuable time, and reduce space requirements for storage. Of even greater importance is the general acceptability of these forms of sustenance by Navy men. Increased emphasis has been placed on the use of ration-dense foods aboard submarines. In addition, a new wartime load for the provision storeship (AF), utilizing many ration-dense food items, has been developed, which increases AF replenishment capability and extends force endurance at sea.

Material Movement

Developments during fiscal year 1963 resulted in increased requirements for management of transportation in support of the POLARIS and other priority weapon systems of the Navy. The necessity for establishing a second site for support of Fleet Ballistic Missile (FBM) submarine operations in the Atlantic Ocean area, the initial moves to establish a NATO FBM force, and the implementation of plans to establish Navy FBM forces in the Pacific Ocean area have necessitated

revisions in the POLARIS movement plan and related transportation management techniques. In this connection, the Navy's contract cargo airlift service, QUICKTRANS, has been extended into the Bremerton, Wash., area to insure availability of responsive airlift service for FBM material generating from the chosen supply facility for the Pacific area.

Increasing needs for mobile communications equipment have posed numerous transportability problems in order to insure adaptability of such material to airlift as well as sealift. Through application of transportability techniques it has been possible to effect redesign of certain equipments of this nature to permit its movement via existing aircraft. Similar transportability research and analysis with regard to submarine propellers holds promise of increasing transportation flexibility by effecting minor design modifications and the development of specially designed transport racks.

Research and development was commenced in January 1963 leading to a Department of Defense integrated materials movement system. Greater responsiveness to logistics demands is envisioned through optimum use of national transport capability, increased speed of supply through greater use of unitized loads, reduced total costs in manpower and dollars through less handling, and increased capability to support combat forces under varying conditions.

Research

During 1963 the Navy's research efforts continued to contribute to the enhancement of its combat capability in a number of important ways. First, there were achievements in areas of direct and immediate application to devices currently on station or in production. Examples of this are (1) the oceanography program which provides valuable information for our submarine and antisubmarine forces, and (2) research in the field of psychological sciences aimed at increasing the effectiveness of weapon systems crews.

Second, there were achievements in areas of great potential value to the Navy of the future. Examples of this are (1) the development of new alloys which will make it easier, and therefore cheaper, to meet the exacting stress requirements in new weapon systems, and (2) the design of ships of minimum wave-making characteristics.

Third, there were achievements in areas still too new to be of significance to equipment currently envisaged, but of major value in contributing to the concepts and knowledge upon which the Navy of the future will be built. Examples of this are (1) an atmospheric physics research program which seeks better understanding of the circulation in the atmosphere and of its vorticity as related to the motion systems that generate storms, and (2) the investigation of the therm-

ionic emission technique for direct conversion of the heat generated in a nuclear reactor to usable electricity.

The Navy's research and development effort is carried on by each of the bureaus, which focus on projects of more immediate application to existing or planned equipment, and by the Office of Naval Research, which focuses on more fundamental projects. These are pursued in the Navy's own laboratories, as well as being sponsored in universities, nonprofit institutions, and industrial laboratories. Fundamental projects are currently underway in the following sciences: Chemical, physical, mathematical, earth, biological, and psychological. In addition, important work is being done in the fields of propellant chemistry, structural mechanics, modern electronics, and hydrodynamics.

In the field of earth sciences, the Navy continued its active participation in the National Oceanographic Program through its leadership in the Interagency Committee on Oceanography. This leadership was expressed clearly in the document, "Oceanography—The Ten Years Ahead," the Government's Long-Range National Oceanographic Plan. This document, issued in July 1963, relates closely to the Navy's own Ten Year Program, TENOC, which is currently undergoing complete revision.

The Navy's Oceanographic Research Program is being prosecuted at 27 universities, 5 Federal and 4 industrial laboratories, and the Oceanographic Office. In addition, about 20 laboratories are pursuing, under research contract, related programs such as marine biology, marine meteorology, and coastal geography. Two research vessels and over a dozen survey vessels carry out the Navy's in-house oceanographic field work, while over 20 university-operated vessels are in operation.

In the materials science program, materials essential to the Navy of the future are being developed. To an ever-increasing extent materials are being called upon to perform under aggressive service conditions or extreme environmental conditions such as high-G forces, aerodynamic heating, low atmospheric pressure, exposure to corrosive chemicals, and high hydrostatic pressure. In addition, modern weapons and equipment must meet much greater reliability and performance accuracy standards. A broad materials program is currently being pursued to provide the necessary knowledge for the development of materials to satisfy these demands.

During fiscal year 1963 a new and improved tantalum-based alloy was developed for ultra-high temperature use. The new alloy has greatly superior fabricability (including weldability) over other ultra-high temperature alloys of comparable strength.

The Navy continues to maintain a strong research program in propellant chemistry. This program provides continued advances in the understanding of the fundamental chemical processes leading to

increased efficiency in utilization and selection of propellants for Navy missiles. The advanced POLARIS missile uses a propellant made possible by Navy-supported research in propellant chemistry. One particular area of interest is the energy release processes by which the potential energy of chemical propellants is converted to propulsive force. The objective is to understand more fully the detailed chemical kinetics important to ignition and combustion in various types of liquid, solid, or hybrid propulsion systems.

The program in structural mechanics provides the foundation for the structural design of improved aircraft and missiles, modern submarines having increased depth capability, improved capability of vehicles and equipment to resist blast and shock loads, and improved surface ships. The program includes research in such areas as fracture mechanics, dynamic elasticity, and structural problems associated with deeper operating depths of submarines.

The Navy also maintains a vigorous program of research in modern electronics (microelectronics). Two areas of great interest are thin-film active and passive elements, and solid state molecular circuitry (molecules in a block of materials arranged in a pattern of a desired electron circuit). These areas show promise of providing electronic components and circuits of greatly reduced size and weight, greater reliability, and reduced and simplified maintenance. Almost any system the Navy uses, be it for guidance, control, navigation, communication, or other application, requires electronics for successful operation. Hence, advances in microelectronics are of great importance to the Navy.

In the field of hydrodynamics, emphasis has been on such problems as drag reduction (resulting in higher speeds for a given powerplant or a reduction in powerplant size for a given speed), hydrodynamic noise (leading to improved sonar operation and quieter ship operation), and ship hydrodynamics (resulting in better stability and control, improved hull forms, reduced wave-making resistance, better rough water operation). Past research in hydrodynamics has laid the foundation for the design and development of modern high-speed submarine hulls, hydrofoil ships, air cushion ships, and other advanced concept hull forms.

Other research projects undertaken during fiscal year 1963 include (1) techniques for measuring the military essentiality of supply items, (2) quality control procedures for data in automatic data-processing systems, and (3) methods of maximizing the psychological effectiveness of men serving in isolation under conditions of extreme stress.

V. Increased Economy

Management Improvement

The Navy's major management improvement efforts this past year concentrated on a comprehensive review, initiated by the Secretary, of the effectiveness, efficiency, and economy of all aspects of the management of the Department of the Navy. The review evaluated the Department's basic management concepts, its response to the needs of the operating forces and the Secretary of Defense, and its performance in meeting objectives. The appraisal was made from three views: (1) External to the Navy, (2) internal to its major components (bureaus and offices), and (3) Department-wide, across all organizational lines in the major functional areas of material, manpower, facilities, and financial management, and in planning, programing, budgeting, and appraisal management.

Out of this review have come some fundamental changes in the Navy's basic management concepts, administration, and structure. These changes clarify ambiguous executive responsibilities, overcome fragmented administration of shore activities and major functions, and regroup bureaus and shore activities to provide a substantial framework for improved management. Although they retain the Department's historic bilinear concept, they realign and purify it. They expand the authority of the Chief of Naval Operations to include all elements essential to the operation and direct support of effective naval forces. On the other hand, they expand the role of the Chief of Naval Material to provide the Secretary and his Secretariat, the Chief of Naval Operations, and the Commandant of the Marine Corps with the means for effectively coordinating and directing the total material support effort and assuring continued development of superior weapon systems.

The most important of these changes are: (1) To spell out in a new general order basic management doctrine to guide all officials; (2) to establish a Fleet Activities Command to direct naval support operations, and to consolidate under naval operating bases reporting to this command all shore complexes supporting the fleet; (3) to designate the Chief of Naval Material the single "executive" to represent the Navy's producer-interests, to supervise the four material bureaus and their industrial and technical shore activities, and to provide total project

management of weapon systems; (4) to centralize facilities management under the Chief of the Bureau of Yards and Docks with Department-wide responsibility for maintaining facilities and operating utilities; (5) to overhaul and integrate the planning and programming functions and the processes for accomplishing work (e.g. coordinate and strengthen plans and programs within the Office of the Chief of Naval Operations, and establish an Office of Program Appraisal to provide the Secretary with an independent appraisal and analysis capability); and (6) to provide new manpower management objectives, with the Chief of Naval Operations determining over-all military personnel needs (quantity and kind) and with the Chief of Naval Personnel producing these manpower needs and reporting to the Secretary.

Many other opportunities for improvement were identified, and recommendations and orderly plans formulated for achieving them. Over 200 of these recommendations have been or are being implemented.

Contracting

During fiscal year 1963 Navy procurement of defense materiel was characterized by an all-out effort to cut procurement costs. Achievement of this goal was sought *first*, by improving the procurement base, viz., by establishing competition in procurements where none had previously existed, by increasing the number of sources where some competition had previously been obtained, and by breaking out components for competitive procurement where an end item necessarily had to be procured from a single contractor and, *second*, by greater utilization of types of contracts designed to stimulate cost and price consciousness, viz., by increasing the use of fixed-price and incentive-type contracts and decreasing the use of cost-reimbursement-type contracts.

Increased Competition

By increasing price competition, there is the potential that prices paid for material and services will be reduced. Increasing price competition not only encompasses soliciting additional firms and reducing sole source procurements, but also involves extensive procurement planning in order that competition may be introduced as early as possible into the procurement cycle. Breakout, one of the techniques involved in increasing the degree of competition achieved, is the segregating of those components of weapon systems that can be bought competitively even though the basic system is of such complexity that technological and engineering considerations restrict its procurement to a sole source.

The Navy's price competition goal for fiscal year 1963 was to obligate 36.9 percent of its procurement dollars through competitive procurement. During fiscal year 1963, the Department of the Navy obligated \$3.182 billion through competitive means which represents 39.1 percent of its total \$8.133 billion obligated. This achievement is 3.7 percentage points greater than the 35.4 percent achieved during fiscal year 1962. It should be noted that this fiscal year 1962 percentage is the adjusted Navy figure which reflects the elimination of procurement actions made by the three Single Managers which were transferred to the Defense Supply Agency during that period.

Decreased Use of Cost-Reimbursement Contracts

The program to reduce the use of cost-plus-fixed (CPFF) type contracts with its resultant increased use of contract types that require greater assumption of risk on behalf of contractors has been vigorously pursued. The Navy's goal in this area was to obligate no more than 20.4 percent of its procurement dollars under CPFF type contracts. In fiscal year 1963, the Department of the Navy obligated 20 percent of its procurement dollars under CPFF type contracts. This compares favorably with 25.7 percent for fiscal year 1962.

Financial Management

During the fiscal year 1963, the Navy continued to adjust its internal financial management to the needs and requirements of the Department of Defense programing system. A smooth-working relationship has been established through the Navy Program Evaluation Center to permit the simultaneous evaluation and resolution of both financial and nonfinancial aspects of budget and program problems, arising both within the Navy and from higher authority. Work has continued on improving and making more useful the Navy's Cost Information System which makes possible the rapid translation of financial program data into a variety of formats for decision-making purposes. Further, the various progress reports formerly reported separately to the Secretary of the Navy have been integrated into an over-all Navy program progress report which presents both financial and nonfinancial aspects of progress against plans. In addition to these improvements, the recently completed review of management of the Department of the Navy has highlighted several additional areas in the planning-programing-budgeting-appraising area where additional improvements can be made, and it is anticipated that further refinements of the Navy's financial management will occur in the coming year.

In other areas of financial management, the Navy has continued to move ahead in its program toward greater efficiency in its disbursing

and accounting operations by consolidating finance activities and providing for common support of satellite activities wherever it is economical to do so. The Auditor General of the Navy has inaugurated several new programs to strengthen the Navy's internal audit capability. These include additional emphasis on recruitment and training of qualified internal auditor personnel, on significantly greater audit utilization through more meaningful and more timely reporting of audit results to Navy top management, and through greater attention to management followup of audit recommendations.

A permanent comptroller organization was established at the National Naval Medical Center and a revised cost reporting system was prescribed for naval hospitals. This new system will allow financial planning, cost reporting, and in-patient statistical information to be integrated so that funds can be allotted to an individual hospital in accordance with requirements for a specific combination of patients.

Inventory Management

High Value Item Management

A High Value Item Management Program has been established within the Department of the Navy. The purpose of this program is to achieve inventory economies without impairing combat readiness. This is accomplished through specialized, intensive management attention to the small percentage of items representing the major segment of the annual procurement dollar expenditure of the Department of the Navy.

High Value Item Management is designed to achieve inventory and procurement reductions through assignment of the best talent and by use of the best techniques in the management of high value items. It is estimated that the High Value Program initially will encompass less than 1 percent of the items in Department of the Navy inventories and more than 40 percent of the annual dollar investment.

Deferred Procurement

In consonance with the objectives of the High Value Program, the Navy and Marine Corps have initiated a deferred procurement policy designed to further enhance material management. This policy permits the initial procurement of a quantity of a selected high-cost item which is less than the original estimated requirement, but which will achieve an equitable balance between the risk of buying disposable excesses of an expensive item and the risk of impairing Navy and Marine Corps combat readiness through lack of maintenance support.

Through the systematic and prudent application of deferred procurements, the Department of the Navy will (1) increase the accuracy of the final selection of the correct range and depth of secondary

items, (2) hold initial investment in selected items to a minimum pending further provisioning reviews, (3) reduce the procurement of items which ultimately become obsolete or require expensive modification because of design changes, and (4) produce substantial savings in over-all material support of weapons, systems, and equipments.

Improved Inventory Funding Practices

New criteria were developed this past fiscal year for exclusion of certain types of items from the Navy Stock Fund. These types of items include insurance, reparable, developmental, and safety of personnel. Budget data has been developed to support transfer of funding and responsibility to appropriation funding under technical bureaus. The objectives of this effort are to improve Stock Fund management through the exclusion of items unsuitable for Stock Fund financing and to improve appropriation budgeting by elevating responsibility for budgeting for the items to the technical bureaus.

Integrated Material Management

Plans were developed for greater integration of Navy stock points with the Defense Supply Agency supply distribution system. These efforts will result in a reduction of over-all Department of Defense inventories and with a larger percentage of stocks at Navy depot levels being financed by the Defense Supply Agency and with a corresponding reduction in financing of inventories under the Navy Stock Fund.

Prior to the establishment of the Defense Supply Agency, the Navy retail functions for the integrated commodity assignments were performed by the Navy-controlled Single Manager operating agencies or the specifically established Navy retail offices. With the establishment of the Defense Supply Agency and several new integrated material assignments, the need for a strong and coordinated liaison between the Navy retail offices and the Defense supply centers became apparent. By consolidating retail functions into one command the Navy could obtain better utilization of personnel and dollar resources and also provide a focal point for dealing with the Defense supply centers concerning support of the fleet and the Navy industrial establishment. Accordingly, in the spring of 1962, the Fleet Material Support Office was established.

Material Disposal

Based upon reports for the first 11 months of this fiscal year, the Department of the Navy generated an estimated \$1.1 billion of excess personal property and disposed of an estimated \$1.0 billion of excess and surplus personal property. The volume of material declared excess has been declining, due chiefly to past aggressive inventory

purification which has purged our stocks of the bulk of excess high-dollar-value items. This decline is expected to continue as inventories become further purified.

Cost Reduction Program

The Department of the Navy is enthusiastically participating in the Department of Defense Cost Reduction Program. The objective of this top priority program within the Department of the Navy is to achieve savings of over \$1 billion per year, to be fully reflected in fiscal year 1967 and in each fiscal year thereafter, compared to the level of operations and the force structure which existed in fiscal year 1961, or some subsequently approved. This objective is to be achieved by increases in the efficiency of procurement and logistics management and operations throughout the Department of the Navy.

The fiscal year 1963 goal of the Department of the Navy was \$449 million. Against this goal, the Department of the Navy accomplished savings of \$622 million—a 139 percent achievement.

The Department of the Navy goal for fiscal year 1964 is \$777 million; for fiscal year 1965, \$1,015 million. We will continue to give the highest priority to actions required to attain our goals in this important program.

Automation

Supply System Automation

As part of an over-all plan to automate and standardize the Navy supply system, the Navy accelerated the development and implementation of uniform automated data-processing systems for inventory control points and stock points. The objective is immediate response to fleet needs by Navy stock points with simultaneous transmitting of transaction data to cognizant inventory control points for system stock evaluation. During the past year, automated data-processing hardware to implement the inventory control point system has been selected and the training of analysts and programmers begun. Full implementation of the basic system is scheduled for mid-1964.

An active automation program was also carried on in warehouses and in field purchasing offices. The Navy's program for warehouse automation now includes automated materials handling systems at the naval supply centers at Norfolk, Va., Bayonne, N.J., and Oakland, Calif., the Naval Supply Depot, Philadelphia, Pa., and the Charleston Naval Shipyard, S.C. Plans are under development for similar systems at the Long Beach, Calif., and Puget Sound Naval Shipyards, Wash., and the Naval Supply Center, Pearl Harbor, Hawaii. Effective automated materials handling systems result in lower labor costs, decreased requirements for conventional materials handling

equipment, decreased packaging costs, and decreased transportation costs.

In March 1963 the Navy Aviation Supply Office in Philadelphia, Pa., became the first Federal agency to automate the processing of purchase orders for stock replenishment requirements. At the beginning of the automated processing cycle, the ASO purchase order system ties in with the already mechanized procedure in which replenishment requirements are automatically computed. Under the new system, documentation will be minimized and countless manual reviews will be eliminated. The ultimate result will be more intensive application of purchasing talent to the large dollar value purchases and at the same time assure that small purchase orders (under \$2,500) will flow through an automated process, simply and quickly. Similar applications will be extended in the near future to other major field purchasing offices having automated data-processing equipment.

Source Data Automation

There was a steady growth in the application of microphotography techniques, such as aperture card systems and the microfilm retrieval system (STORE) for intelligence documents, installed in the Office of Naval Intelligence. Source Data Automation (SDA) systems increased from 88 to 128. Significantly, the Government Services Administration sponsored, for Government-wide use, the Navy's SDA Equipment Guide, its SDA training course, and its newly published Data Communications Equipment Guide.

Other Instances of Automation

During fiscal year 1963 the Marine Corps introduced addressograph equipment into units of the Fleet Marine Force and supporting establishments. Partial mechanization of the administrative function has resulted in the ability to reallocate approximately 500 Marines into the expanding billet requirements of the Fleet Marine Forces.

Also during fiscal year 1963 remote control dictation systems and radio paging systems were extended to almost all hospitals. Twenty-one hospitals are now equipped with automatic data-processing systems, seven having been added during the year. By use of these systems, in-patient reporting procedures were completely revised so that data analysis for professional, administrative, and research purposes will be on a more timely basis. In this connection, regional medical data-processing centers were established to serve the needs of specific geographic areas and specified commands for data useful in planning and logistics.

Manpower Utilization

Civilian Personnel

During fiscal year 1963 the Department of the Navy continued its efforts to reduce the total number of employees and to make best use of its personnel.

The Department of the Navy is fully aware of its important responsibility in this area since it is the third largest employer of civilian personnel in the Federal Government. The over-all composition and deployment of the Navy's civilian personnel is shown in the following tables:

TOTAL CIVILIAN PERSONNEL (AS OF JUNE 30) 1963 vs. 1962

	1963	1962	Difference
Graded.....	138, 636	136, 152	+2, 484
Ungraded.....	205, 334	211, 904	-6, 570
Total.....	343, 970	348, 056	-4, 086

GEOGRAPHICAL DISTRIBUTION OF CIVILIAN PERSONNEL 1963 vs. 1962 (As of June 30)

	United States	Possessions	Foreign areas
GRADED			
1963.....	130, 471	1, 706	6, 459
1962.....	128, 034	1, 715	6, 403
Difference.....	+2, 437	-9	+56
UNGRADED			
1963.....	189, 214	3, 621	12, 499
1962.....	196, 701	3, 416	11, 787
Difference.....	-7, 487	+205	+712
TOTAL			
1963.....	319, 685	5, 327	18, 958
1962.....	324, 735	5, 131	18, 190
Difference.....	-5, 050	+196	¹ +768

¹ This increase is accounted for primarily by the addition of 812 noncitizen employees manning MSTs ships in Japan who were previously employed under the Japanese Master Labor Contract and were therefore not included in these figures.

Manpower Utilization and Control

The emphasis of this program has been on the optimum use of manpower. In several new areas gains have already been noted or can reasonably be expected to obtain.

An extensive outplacement program was initiated in connection with the intensified Office of the Secretary of Defense efforts to find positions for Department of Defense employees being displaced by

reduction in force or transfer of function. A pilot program during the last quarter involved naval activities in the southeastern part of the United States. This effort resulted in the placement in naval activities of 78 displaced Department of Defense employees, thus enabling the retention of DOD-earned experience and training. This pilot program indicates that a total effort for all activities should enable retention of a substantial number of skilled personnel, many of whom have been trained at Navy expense.

In an effort to insure the optimum use of existing manpower a complete survey of employees in lower level jobs was initiated to determine whether their skills are being utilized. When the results of this survey are available, corrective action will be instituted in any cases of nonutilized skills.

Scientific Personnel

There was a considerable increase in emphasis on the growing importance of research and development and other scientific and technical programs and on the importance of effective personnel administration in such programs. As a result of the findings of Task Force 97 (a joint Department of Defense-Civil Service Commission team to investigate the working climate of military laboratories), a team of specialists visited 28 of the Navy's primary laboratories to discuss problems in personnel administration with key operating personnel of the various laboratories. As a result, a number of problems in personnel administration were identified and remedial action was taken or initiated.

The position of Special Assistant for Scientific Personnel was added to the immediate staff of the Chief of Industrial Relations. The incumbent is responsible for coordinating personnel administration actions on matters pertaining to scientific personnel, and for liaison with activities, agencies, and persons who are interested in such actions.

Military Personnel

Actions designed to improve the utilization of military personnel focused on these general areas:

- (1) The establishment of more precise staffing guides to help planners and field commanders decide on adequate staffing limits;
- (2) The further development of tests to insure that individuals occupying billets are capable of performing assigned responsibilities; and
- (3) The vigorous pursuit of staff reduction where appropriate as an inherent element of command.

As part of the program to establish more precise staffing guides, a continuing study has been made of ships in the active fleet in an attempt to standardize allowances of Atlantic Fleet and Pacific Fleet

ships. This study has resulted in the standardization of approximately 90 percent of active fleet ships.

In order to assist field commanders, a U.S. Navy Staffing Criteria Manual was begun. The first section, containing guides for 13 functions, was published March 4, 1963.

The Navy's requirements for both quality and quantity exceed available manpower resources. Distributing manpower resources by functional lines (by rating, officer code designator), as has been customary, is not completely successful when resources do not meet requirements.

National Defense priorities (POLARIS) as well as Navy-defined priorities (SAM) have established a pattern of requirements for manpower by weapon systems. A Weapons System Program Management Office has been organized within the Bureau of Naval Personnel to answer two questions: (1) What are the requirements for manpower by weapon systems in being and on the drawing board? (2) What effect will manning these systems have on the rest of the Navy? Program managers will use the services of operations research analysts and automatic data-processing equipment to provide the management with alternate courses of action.

In order to assist planners, a Computerized Advance Personnel Requirements Information (CAPRI) system was developed. This system provides information on personnel and training requirements of new weapon and support systems. In addition, a prototype Improved Manpower Production and Controller Technique (IMPACT) report was developed. This report coordinates personnel planning with hardware development. It contains projected personnel and training requirements of new systems treated individually and as a consolidated group. It has been applied to 18 new weapons and support systems.

Among the proficiency tests developed during fiscal year 1963 were those for various groups of guided missilemen, NTOS system technicians, and computer technicians. However, the most gratifying accomplishment during fiscal year 1963 was the increased recognition that improved manpower controls and utilization measures are both essential and rewarding. More and more commanding officers are realizing that objective realignment of their internal organizations will reduce work and improve responsiveness. As an example of such constructive action, the new Chief of the Navy Section of the Joint U.S. Mission for Military Assistance to Turkey instituted, on his own initiative, a major reorganization of his activity which resulted in a one-third reduction of personnel, more emphasis on basic training mission and less on support, and elimination of 22 sets of public quarters programmed for construction.

Audit Utilization

As part of its continuing effort to achieve maximum value per dollar expended, the Department of the Navy employs some 1,200 professional auditors, working under the direction of the Auditor General of the Navy. Two-thirds of the audit effort in the Navy is devoted to "contract audit," the review of contractors' cost estimates and reimbursable cost claims. During fiscal year 1963 there were 16,801 contracts audited. These involved 3,318 contractors and were worth \$12.3 billion. In the last 3 years there has been a fivefold increase in the amount of audit effort devoted to reviews of contractors' price proposals in order to aid contracting officers in arriving at fair and equitable prices of negotiated contracts.

One-third of the Navy's auditors are assigned to the review of the Navy's own business management, using the techniques of "internal audit." Notable progress was made in fiscal year 1963 by the Navy audit organization in improving the worth of its internal audit reports. There were 640 separate internal audits conducted during the year.

The Navy has initiated a continuing Navy Audit Improvement Program. Part of this program is increasing the emphasis on integrated (Navy-wide or regional) internal audits devoted to the more important aspects of Navy management. The first major servicewide "integrated" internal audit concerned the management of repairable aeronautical material. It is planned to increase the effort devoted to integrated audits to 50 percent of the total internal audit effort as compared with a previous level of only 5 percent.

Another part of this program will shorten the time of completion of internal activity audits to publication of audit reports from about 6 months to about 2 months. This will be done by decentralizing the release of formal internal audit reports to the 10 field Navy area audit offices.

In order to achieve a maximum degree of audit utilization, a new concept of the auditor's responsibility in this process has been developed. Under this concept, the auditors meet with management officials in the process of planning management's actions in response to audit findings. They also meet for the purpose of reviewing the audit findings to assure that they are comprehensive and adequate to the needs and to establish target dates for the correction of deficiencies noted in the report. This has proven to be very useful.

Another achievement is the development of an "audit summarization" capacity in order to provide management with quarterly summaries of contract and internal audit findings grouped by general areas of functional interest in specific topics of current importance. In this manner the Secretariat of the Department is made aware of existing or potential problem areas, patterns or trends, increases or decreases in the scope of a problem, and the dispersion of a problem.

VI. The Navy and the Civilian Economy

Industrial Complex

Distribution of Ship Work Between Private and Naval Shipyards

During fiscal year 1963 private shipyards received a larger percentage of Navy work than in any previous year. The Navy made available for private shipyards \$326.69 million in naval ship repair, alteration, and conversion work (budgeted costs), exclusive of work for the Military Sea Transportation Service. This is slightly in excess of the 35 percent required by Section 541 of the Department of Defense Appropriation Act, 1963. Approximately \$1,888.11 million in new construction work (budgeted costs), representing 87.3 percent of the total program, was awarded to private shipyards; this was done of the Navy's own volition and required broad use of the Presidential exception proviso to the 50-50 requirement, relating to warships, which is contained in the Vinson-Trammell Act (48 Stat. 504).

This apportionment of a large share of the Navy's ship work to private yards is consistent with trends since World War II. The Navy has awarded the bulk of its new construction work to private shipyards, in keeping with the industry's experience, capabilities, and planned future missions. This amounted to approximately 70 percent in the decade preceding fiscal year 1963. Repairs performed in private yards were increased from virtually zero before World War II to about 24 percent in recent years, although repairs and conversions traditionally are assigned to naval shipyards in keeping with their assigned tasks of performing overhauls and battle damage repairs in wartime and rapid augmentations of fleet readiness. The over-all increases in the award of Navy work to private shipyards have bolstered the shipbuilding and repair industry, which has suffered a severe decline in commercial work.

The Navy's policies regarding the distribution of naval ship work are designed not only to help support the shipbuilding and repair industry at a level adequate for defense needs but also to maintain the naval shipyard complex as an integral part of fleet readiness.

Industry Preparedness

The Navy, in reviewing the procurements of the various bureaus and offices for fiscal year 1963, approved 22 projects to assist private

industrial firms and Government-owned industrial plants in acquiring additional facilities and equipment for the production of items urgently required for military readiness. These facilities have been justified on the basis of strict military necessity, cost savings, and as not within the individual company's ability to finance. Screening of the industrial reserves for machine tools and other production equipment has resulted in an estimated saving of \$14.9 million for items that otherwise would have been purchased.

Industrial Assistance Program

During fiscal year 1963 more than 40 events were held with industry and communities to assist them to participate in Navy business. Considerable emphasis was placed on small business opportunities in Navy procurement. These events took place in 25 States from Maine to California and from Texas to North Dakota, with national coverage by regional invitation.

Of particular importance were two Navy research and development clinics for the Pacific Northwest and Great Lakes regions, respectively. The principal objectives were (1) to provide individual technical counseling on Navy's R&D problems to industry, including contractual opportunities at both the prime and subcontract level; (2) to inform industry of procurement procedures and technical requirements; and (3) to enlist the talents of private enterprise in the solution of these problems. The program is continuing for fiscal year 1964.

U.S. Merchant Marine

Utilization of U.S. Flag Vessels

The strategic importance of ocean transportation in wartime dictates that the United States must have under its control sufficient active merchant-type shipping to meet our initial emergency sealift requirements promptly. It is Navy policy to provide maximum feasible support to the objective of maintaining a large, modern, well-balanced merchant marine.

Less than 10 percent of U.S. export-import trade is carried by U.S. flagships. The generation of more cargoes for our ships promises tremendous benefits for all maritime industries, for national growth and prosperity, and will have an impact on the outflow of dollars in payment for foreign-controlled shipping services.

The Navy, recognizing the importance of our merchant marine, continued during fiscal year 1963 to schedule approximately four-fifths of DOD-sealifted cargoes in U.S. flag merchant vessels and the remainder on MSTS ships.

Navy Participation in "Flag of Convenience" Case

Navy law specialists actively assisted in drafting the United States brief *amicus curiae*, filed before the Supreme Court on October 9, 1962. At issue was whether the Supreme Court would uphold the Federal Court decision that the National Labor Relations Board had no jurisdiction over maritime operations of foreign flagships employing alien seamen. The Navy's position was that if the decision was not upheld, it would have serious repercussions on the relations between the United States and the PanLibHon countries; and the "Flag of Convenience" ships would not be available to the United States in time of emergency. The decision was upheld.

Small Business

In keeping with the policies of the President and the Secretary of Defense, a total of \$3.2 billion in Navy procurement money went to American small business in fiscal year 1963. Of this amount, \$1.2 billion was awarded to these concerns as prime contractors. The remainder of \$2 billion was funneled to small business through prime contractors in the large business category. This represents a substantial part of the total of \$7.8 billion awarded to all U.S. business during that fiscal year.

The Navy had been assigned a goal of 15.6 percent by the Office of the Assistant Secretary of Defense (Installations and Logistics) of all procurement money to be awarded to small business as prime contractors. However, due to changes in the anticipated procurement pattern a total of 15.3 percent was reached. The amount of money which can be channeled to small business is largely dependent upon the nature of the materials and equipments which the Navy buys. For example, if the "mix" of the purchases indicates an increase in Navy's dollars which go for large items such as aircraft and ships, which are not within the capability of small business to provide, then the money available for small business prime contractors would show a proportionate decrease. To offset such a situation, the Navy is actively pushing its program to encourage large prime contractors to increase their awards to small business subcontractors. During fiscal year 1963 the Navy significantly exceeded the amount originally expected to be awarded to small business subcontractors.

In addition to the subcontracting program, the Navy is working to increase awards to small business by:

- (1) Increased competitive procurement through such programs as the DOD High Dollar Breakout Program. Price competition increased from 35.4 percent in fiscal year 1962 to 39.1 percent in fiscal year 1963.

- (2) More publicity for intended procurements.
- (3) Greater emphasis on advance procurement planning at all levels of procurement.
- (4) Improved coordination between technical, contract, requirement, and small business personnel.
- (5) Closer coordination with the Small Business Administration to take advantage of suggested new business sources.

Equal Employment Opportunity

During fiscal year 1963, the Department of the Navy's implementation of the President's Equal Employment Opportunity Program concentrated on reducing the number of complaints arising both from its own employment practices and from those of its contractors.

With respect to its own employment practices, there was a concerted emphasis on reducing the case load of discrimination complaints and on the development of plans of affirmative action. The Secretary of the Navy has emphasized personally, and by means of directives, the importance of completing case processing within established deadlines. Supervisory training programs were developed emphasizing those aspects of the program in which supervisory knowledge appeared weakest (based on a survey of civilian and military supervisory personnel throughout the Department). This was followed by a mandatory employment pattern review for which each command analyzed the 1961 and 1962 minority group census reports to identify those areas where an inadequate utilization of minority group talent might be indicated.

The affirmative action aspects of the program were increasingly emphasized in supervisory and management training courses and conferences and in the Naval Leadership Program.

Naval activities have been developing individual plans of affirmative action, tailored to meet local needs and those of their geographical location. A number of activities have established employee committees on equal employment opportunity, whose members serve as staff advisors to commanding officers, and who will attempt to resolve incipient complaints before they are formalized. Activities are also devoting considerable effort to the area of command-community relationships. Formal and informal contacts with minority group educational institutions were increased, particularly with those below the university level, and with civic organizations representing the minority group communities.

Various studies were initiated. These included special studies of Negro underutilization. Another study was concerned with minority group applicants for entrance level positions which can be expected

to lead ultimately to employment in managerial or supervisory positions.

The second aspect of the Department of the Navy's Equal Employment Opportunity Program is that involving compliance by Navy contractors with the terms of the nondiscrimination clause which is included in all Navy contracts in excess of \$10,000. The Assistant Secretary of the Navy (I&L) is in charge of administering the contractor compliance program. A small staff in his immediate office conducts the headquarters aspects of the program. Navy Intergroup Relations Specialists are regionally distributed throughout the country and act as field representatives of the Assistant Secretary.

Among the responsibilities of the Assistant Secretary and his contract compliance staff are the investigation and review of discrimination complaints filed by employees of Navy contractors and the conduct of compliance reviews to insure that contractors' employment practices are in accordance with the terms of the nondiscrimination clause.

The Navy contract compliance staff, in order to meet urgent priority assignments received from the President's Committee on Equal Employment Opportunity, is scheduling between 400 and 500 special compliance reviews to be conducted by Navy Intergroup Relations Specialists prior to December 31, 1963. These include corporate-wide reviews of some 30 multiestablishment corporations with a total work force of more than 650,000 employees.

A Department of the Navy guide for complaint investigations and compliance reviews has been prepared and will be distributed to all Navy field activities to provide detailed guidance for the implementation of the equal employment opportunity program. This guide explains the Navy program in depth, outlining the jurisdiction of the Executive order which established the President's Committee on Equal Employment Opportunity, and provides step-by-step procedures for investigations and reviews.

Within recent months, the number of pending discrimination complaints filed by employees of Navy contractors has been reduced markedly. The case backlog has been virtually eliminated so that complaints may now be processed on a day-to-day basis.

Procurement in Labor Surplus Areas

During fiscal year 1963, Navy placed contracts valued at approximately \$1.2 billion in labor surplus areas throughout the United States. This represented 17 percent of Navy awards valued at \$10,000 or more during the year. Achievement by procuring activities was as follows:

Activity	Thousands of dollars	Percentage
ONR.....	26,377	15
BuWeps.....	457,807	12
MSTS.....	46,342	23
BuDocks.....	45,094	19
MarCorps.....	6,260	15
BuShips.....	447,920	23
AO, Exos.....	255	13
BuPers.....	1,278	15
Busanda.....	180,268	19
Navy.....	1,211,601	17

Of this total, \$27.8 million was awarded as a result of set-aside or tie-bid preference to concerns in areas of substantial unemployment. It is significant to note that at the end of fiscal year 1963, there were only 39 major areas of substantial unemployment as compared to 51 at the end of fiscal year 1962.

VII. Conclusion

During fiscal year 1963 the Department of the Navy again demonstrated its capability. It proved itself capable of dealing with fast-breaking situations such as Cuba, and of maintaining the long, steady vigil required of sea-based strategic retaliatory forces. It proved itself capable of major new developments in military technology, and of stretching even further the degree of military effectiveness received for each dollar of expenditure.

With respect to Cuba it should be noted that the great and dramatic effort that was the quarantine off our southeastern shores may prove to be a turning point in history. The success of the entire operation, including the rapid response to the President's proclamation and the splendid command relationships, was a tribute to and a demonstration of the effectiveness of the U.S. Navy as an essential instrument of national power. Undoubtedly our Navy/Marine Corps team will be faced with other tests, perhaps even more severe ones, in the days ahead. There can be no question that the team must remain constantly at the ready for whatever and wherever it may be called upon to perform.

Maintaining this readiness is the dominant aspect of the Department's mission. The Navy and the Marine Corps must always be ready: Ready to move, if ordered; ready to fight, if necessary; ready to win, if engaged.

Maintaining a high degree of readiness requires good people: Competent and dedicated scientific and technical people who can envision and create the advanced hardware essential to military strength; competent and dedicated military personnel who are able to operate and to maintain weapon systems of ever-increasing sophistication and complexity; competent and dedicated administrative personnel who are able to obtain the fullest measure of value from each dollar that is spent.

Attracting, developing, and rewarding competence and dedication are therefore matters of continuing concern to the Department. Progress is being made in the constant search for ways to insure the retention for longer periods of time on active duty those who have the requisite skills to maintain the complex systems occurring in ever-increasing numbers in our naval forces. Adequate remuneration, better standards in housing, and an increased awareness by the general public

of the necessity for a strong Navy and Marine Corps, plus an appreciation of the tremendous jobs our people in uniform do day after day, are all mandatory. Within our own house, increased responsibility for the younger officers and enlisted men, coupled with skilled guidance by their more experienced seniors will enhance our splendid tradition of selfless service and stalwart leadership.

Maintaining a high degree of readiness requires an enormous technological effort. In the year ahead, we must continue to decrease the time lag between the achievement of scientific advances and their incorporation into new weapon systems deployed in the fleet. And we must continue to engage in and to support the fundamental research programs that will ultimately provide the theoretical foundation for the Navy of the future.

Maintaining a high degree of readiness requires a carefully designed and skillfully managed organization. We are a large organization, operating complex equipment on a worldwide scale. The nature of our establishment and the importance of our mission make it mandatory that we continue our efforts to tailor our organization to our needs and to sharpen our managerial skills.

In this field, fiscal year 1963 has been a year of tremendous progress. A number of important organization changes were decided upon. Fragmentation and ambiguity of responsibilities and command relationships were eliminated through the expedient of placing many of the shore activities, which were formerly under the cognizance of the various bureaus, directly under the command of the Chief of Naval Operations. The Fleet Activities Command includes all fleet support complexes, which at the local level will be naval operating bases under the command of the senior officer present, in many instances the Naval District Commandant.

On the Department level, the Chief of Naval Material has taken on added responsibilities, essential to control the continued development of superior weapon systems and the efficient utilization of resources in the total material supporting effort.

As an additional tool for effective management in this area, the Office of Program Appraisal will provide independent program appraisal and analysis.

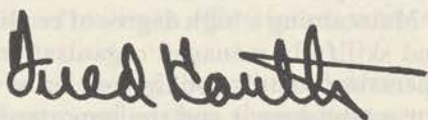
Each of these changes improves our over-all efficiency, flexibility, and reliability, and points the way for continued improvements.

It should be made clear in concluding this report that the leaders in the Department of Defense and the Department of the Navy, both civilian and military, are essentially a single team.

There is, and must continue to be, a feeling of mutual trust and respect between our military and our civilians which has endured since the birth of our country. This is an extremely healthy situation for

which we can be proud and thankful. There are few, if any, nations on the face of this earth that can count this spirit of understanding as one of their strengths.

To me, it is a source of gratification, mixed with both pride and humility, to know that the Department of the Navy is replete with dedicated, motivated people, both in uniform and out. These men and women constantly strive to insure that every facet of our great establishment is at all times prepared for its primary role: Utilization as an instrument through which our Commander in Chief may take appropriate action, at the proper time, from a position of strength. I am pleased to forward this report on their accomplishments during the fiscal year 1963.



FRED KORTH,
Secretary of the Navy.

1. Introduction

Annual Report

of the

SECRETARY OF THE AIR FORCE

July 1, 1962, to June 30, 1963

Contents

	Page
Chapter I. INTRODUCTION.....	243
II. COMBAT FORCES.....	246
III. MANPOWER.....	259
IV. MILITARY TRAINING.....	264
V. HEALTH AND WELFARE.....	271
VI. INSTALLATIONS.....	277
VII. RESEARCH AND DEVELOPMENT.....	282
VIII. PROCUREMENT AND PRODUCTION OF MATERIEL.....	294
IX. LOGISTIC SERVICES.....	300
X. MANAGEMENT.....	305
XI. BUDGET.....	311

I. Introduction

In fiscal year 1963, the U.S. Air Force passed a number of significant milestones marking either the end of long-standing programs or the beginning of new programs to improve its over-all capabilities. The combat commands, particularly, substantially increased their ability to carry out their missions. Outstanding recorded events in the strategic mission field include: Completion of the ATLAS-TITAN ICBM construction program; bringing the first MINUTEMAN wing to operational status; expansion of the airborne command post system; and considerable improvement of command and control facilities.

In the tactical area, there has been an increase since 1961 in the number of tactical air squadrons by one third, a 60 percent increase in tactical nuclear forces deployed in Western Europe, and a 60 percent increase in airlift capability—all illustrating an unremitting effort to maintain the highest state of readiness. These events and other important developments are spelled out in detail in the body of this report.

Beyond all other achievements, the one event which dominated fiscal year 1963 for the Air Force, for the United States, and even for the world, was the Cuban crisis of October 1962.

On October 22, 1962, President John F. Kennedy went before the people of the United States to inform them that stationing of Soviet missiles in Cuba constituted an "explicit threat to the peace and security of all the Americas. . . ." Air Force photoreconnaissance missions over Cuba in the week preceding the President's announcement had disclosed the rapid buildup of offensive weapons just 90 miles from American soil and provided the basis for his prompt and positive reaction to the challenge.

Aerial reconnaissance played a key role throughout the crisis by keeping policymakers informed of day-to-day events in Cuba and its surrounding waters. Behind the President's unswerving insistence that the Soviet offensive missile bases in Cuba be dismantled was the certain knowledge that the United States could effectively respond to any rash or drastic action by Cuba or by the Soviet Union.

That certain knowledge by policy-makers on both sides of the clear superiority of the U.S. strategic capability was a satisfying payoff of the confidence initially expressed 15 years before by the foresighted

leadership of a newly co-equal and coordinate Department of the Air Force. Mindful of Winston Churchill's remark in 1949 that Western Europe would have been communized were it not for the atomic bomb in the hands of the United States, Air Force leaders maintained an overwhelming striking power in the Strategic Air Command.

That judgment, which was to provide the essential deterrent to major Communist aggression during the 1950's, was dramatically vindicated in the Cuban crisis. President Kennedy could act with confidence that we had established a quarantine without fear of a mutual escalation where "even the fruits of victory would leave ashes in our mouth."

The strategic potentials which the United States began to develop did not deter our principal adversaries from a series of less than total aggressions. To meet that kind of danger, the United States in 1961 had established the U.S. Strike Command. STRICOM was organized as a mobile, hard hitting, and flexible Army-Air Force team. It was accorded co-equal status with other unified and specified commands. Within 2 years, improved tactical operations had become standard operating procedure. Beyond that, the Joint Chiefs of Staff had acquired a field laboratory for developing and testing new joint concepts for operations.

Today, with high mobility and readiness, STRICOM can almost instantly send U.S. forces of any size to prevent wars, render assistance, and extinguish brushfire hostilities without weakening U.S. positions in other areas.

The Strategic and Tactical Air Commands could not have accomplished their missions without dependable airlift capability. Backbone of the airlift force through the end of fiscal 1963 was the C-124, around which every airlift operation since Korea had been built. Shortly after the close of the fiscal year, the C-141 Starlifter, a radical advance in military airlift, was rolled out, portending a major breakthrough in logistic supply. While it is not scheduled to be delivered in substantial numbers until fiscal 1965, the C-141 was expected by 1968 to increase MATS ton-mile airlift capability four-fold. Combined with an electronically operated, ground-handling system, the C-141 promises to cut turnaround time, which is the normally unproductive time on the ground.

To meet the interim general purpose force requirement for airlift, the Air Force ordered additional C-130's, while awaiting production of the C-141.

Fiscal year 1963 was a year of payoff in another critical area. In October 1962, the last production B-52's and B-58's came off the assembly lines, and by the end of the fiscal year, intercontinental ballistic missiles were coming in at the rate of 1 a day. The orderly transition of the strategic forces was well under way, and missiles

began to share with the manned bomber forces the principal reliance for U.S. strategic aerospace power.

The Air Force simultaneously engaged in providing centralized planning and supervision of a multibillion dollar research, development, testing, and production program. From this effort emerged not only the principal portion of the strategic missile force, but also the technological base to support a considerable part of the national space effort. Many of our space accomplishments—those of the Air Force as well as those of the National Aeronautics and Space Administration—could not have been achieved so quickly and successfully without the prior experience gained during the Air Force missile development program.

Dual-purpose rocket and related research culminated in mid-May 1963 when Maj. Leroy Gordon Cooper, Jr., USAF, successfully concluded NASA's Project MERCURY program by circling the globe 22 times in 34 hours and 20 minutes, after being launched into orbit by the Air Force ATLAS booster. The follow-on GEMINI program under NASA auspices was to be built around the Air Force-furnished launch vehicle, an adaptation of the proven TITAN II.

If the Air Force history during fiscal year 1963 embraced a central theme, it was one of diversification of effort. In the 1950's, effective defense against total war was the most pressing problem—and certainly the most critical. By 1963, as certain measures had been taken to assure the survivability of our strategic forces, Air Force planning was built around the concept that as long as the United States maintains a credible second-strike capability, any aggression is likely to take the form of a limited test of our determination to resist. Consequently, management of our resources has been based on an increased ability to provide options that can be used to counter aggression below the level of total war.

There has been a corresponding change in research and development objectives. In the budget for fiscal year 1963, the Congress appropriated \$3.6 billion for Air Force research, development, test, and evaluation, representing approximately a 50 percent increase over the previous year. This diversified research funding is essential if the Air Force is to respond flexibly to the historic change in the nature of anticipated conflict to insure our continued effectiveness in the years ahead.

II. Combat Forces

The Air Force attained during fiscal year 1963 the highest state of combat readiness in its peacetime history. Its striking power reached a new peak since the Nation first adopted the policy of strategic deterrence. The Cuban crisis of October 1962 afforded an excellent opportunity for airpower to demonstrate its rapid, selective, and flexible response to a situation of extreme gravity and urgency. The manner in which the Air Force marshaled and applied its forces—strategic, tactical, air defense, and airlift—again illustrated the value of airpower in the national military posture.

On October 14, Air Force reconnaissance aircraft obtained the first demonstrable evidence of the presence of Russian offensive missiles in Cuba. Four days earlier, in view of the generally tense situation, the Chief of Staff had directed the prepositioning of supplies in the southeastern United States. Following the discovery of the missiles, Air Force commands worldwide progressed through various stages of alert and deployment, including intensification of strategic airborne alert, combat dispersal, movement of tactical air and air defense units to Florida, and airlift of Army units. As the crisis progressed to its climax during the week of October 21-27, the Strategic Air Command (SAC) and the Tactical Air Command (TAC) aircraft conducted intensive reconnaissance of Cuba and its surrounding waters, while thousands of aircraft in combat commands stood ready for instant offensive or defensive action. On October 27 the President directed the mobilization of part of the air reserve forces. The following day, tension began to lessen when the Soviet Union agreed to dismantle the sites and remove the missiles from Cuba, but extensive reconnaissance operations and diminishing stages of alert continued until near the end of November.

In the course of the year the number of Air Force combat wings dropped from 97 to 86 (315 squadrons), resuming the long-term reduction begun in 1957 but interrupted because of the Berlin crisis in fiscal year 1962. The decline was distributed between the strategic and tactical air forces, reflecting the phaseout of older strategic medium bomber wings and the return to inactive duty of reserve units called up during the Berlin crisis. Air defense combat wing strength remained essentially stationary. Strategic missile forces increased as manned bomber forces declined, but the latter, of course,

still formed the great bulk of Air Force striking power. The two complemented each other and confronted the enemy with a balanced strategic power that would be extremely difficult to destroy or deny. Under this shelter, other elements of military power were free to exercise their full potential.

The Air Force, like the Department of Defense as a whole, emphasized general purpose forces useful in many contingencies short of general war. These included powerful tactical air forces capable of operating separately or in conjunction with Army forces in geographically limited locations as well as a greatly improved airlift to support the movement of Army units to troubled areas. These improved tactical air forces permit the Nation a choice of options from the lower portion of the combat spectrum, including show-of-force, counterinsurgency, and conventional war.

The Air Force continued to give particular attention to counterinsurgency, developing specially trained and equipped units to apply airpower in insurgency-type struggles. It also cooperated with friendly governments faced with the threat of Communist-inspired and -financed insurgency, as in South Vietnam, by instructing their personnel in the use of airpower. The focal point for these activities is the USAF Special Air Warfare Center at Eglin AFB, Fla., where selected personnel, using propeller-type aircraft, learn to use new tactics and equipment for counterinsurgency operations. The Air Force also programed increased quantities of improved conventional munitions as war readiness material for nonnuclear wars.

The great improvement in airlift, which began last year, directly increased the Nation's capability to conduct or to aid other free nations in limited war and counterinsurgency operations. This was strikingly demonstrated during the crisis following the Chinese breakthrough in northeast India. In answer to India's appeal, MATS C-135's and USAFE C-130's on November 2, 1962, began airlifting almost 1,000 tons of urgently needed automatic weapons, ammunition, and communication equipment from Rhein-Main Air Base at Frankfurt, Germany, to Calcutta, India. The operation was completed within 10 days. USAFE also deployed a 12-plane C-130A squadron for support of Indian operations on the northeast frontier, and this squadron, a part of which remained there, had airlifted 14,000 personnel and 20,000 tons of military supplies by June 30, 1963.

The Air Force continued to improve its facilities for centralized command and control. Through these, it directs the support of USAF combat forces and also supports JCS operational direction of combat forces. The Headquarters, USAF Command and Control System (473L), although still in a status of operational training, gave significant service during the Cuban crisis to the Air Staff, Joint Staff, OSD, and State Department. Although the operational date

slipped, acquisition costs remained below original estimates. Additional programing capabilities were integrated into the system, training of personnel progressed, and construction to house a large-scale computer began at the Air Force Command Post.

Work on the National Emergency Airborne Command Post (NEACP) progressed satisfactorily. The Air Force continued to operate the Bomb Alarm System, with its 99 sensor sites and 9 terminals.

In January 1963 the United Kingdom, Italy, and Turkey announced their decisions to phase out the IRBMs on station in those countries (60 THOR, 30 JUPITER, and 15 JUPITER missiles, respectively). Beginning in 1957, the Air Force had supplied the missiles and trained the handling crews, while U.S. military teams retained custody of the nuclear warheads. These weapons contributed greatly to NATO's early ballistic missile strength, but have been supplanted by more efficient weapons. Some of the THOR missiles will be returned to this country for possible use as boosters for space vehicles.

Strategic Air

The Strategic Air Command stressed modernization of the combat force through its ability to survive attack and to respond quickly with improved striking power. SAC inactivated five bomber wings and declined over-all by three combat wings as retirement of B-47's resumed after the temporary suspension caused by the Berlin crisis. This reduction in aircraft wings was counterbalanced by the addition of two strategic missile wings and improvements to the bomber and tanker fleets.

The production programs for both the B-52 and B-58 were completed in October and November 1962, respectively. The question of a successor aircraft remained unsettled, but research studies on a future manned strategic bomber are exploring all possible alternative systems.

Meanwhile, the Air Force has made every effort to increase the life expectancy and reliability of the 42 B-52 squadrons (630 aircraft) and 6 B-58 squadrons (80 aircraft) that will form the backbone of the strategic striking force through fiscal year 1967. When several unforeseen major structural deficiencies appeared in the B-52, extensive corrective action was required. In September 1962, Project STRAIGHT PIN got under way to rework the G and H series after several aircraft had developed cracks in the wing terminal fittings. Two B-52 accidents in January 1963 were attributed to failure of the vertical fin attaching point. The major bulkhead in the tail structure was replaced and an automatic pilot control system to reduce aerodynamic strains imposed on the tail was incorporated. In Febru-

ary 1963 the Secretary of Defense approved the Hustle Up program to improve B-58 operational reliability.

The electronic countermeasure (ECM) modification programs to enhance the penetration capability of the B-47 and B-52 continued, and modifications to the B-47 force were nearly complete. Production of the AGM-28 HOUND DOG air-to-surface missile ended in March 1963 with delivery of the 722d missile. Twenty-nine B-52 squadrons are equipped with 20 missiles each.

The SAC jet tanker fleet expanded with the delivery of 92 additional KC-135 aircraft, permitting the equipment of 9 of 11 newly activated squadrons. Meanwhile, 10 KC-97 squadrons, supporting the B-47 force, were inactivated or converted. The modification program to improve directional control of the KC-135 was on schedule.

By April 1963 the single manager tanker force for the Air Force under SAC control was supporting all TAC oversea deployments and redeployments entirely with KC-135's. As TAC's KB-50 phase-out began, SAC increased the number of KC-135 sorties to support TAC training in in-flight refueling.

The three major operational strategic missile systems reached maturity during the year. In August 1962 the Air Force completed the ATLAS D Category III test program, with 14 of 15 missiles impacting in the target area. During September the last three TITAN I missile complexes were turned over to SAC, completing the 6-squadron force of 54 missiles on launchers. In December 1962, SAC assumed control of the last of 12 ATLAS F launchers at Plattsburgh AFB, N.Y., completing the 6-squadron ATLAS F program as well as the total 13 squadron ATLAS force of 129 missiles on launchers. Both the TITAN I and ATLAS F are housed in underground silos, physically protected from anything other than a hit or near miss by a large nuclear weapon. They can be raised and fired within the Ballistic Missile Early Warning System (BMEWS) warning time.

The MINUTEMAN and TITAN II programs proceeded on schedule. Within the approved 950 MINUTEMAN program, the first two flights of 10 missiles each became operational under SAC control in November 1962; the first squadron of five flights in February 1963; and the first complete wing, armed with 150 missiles, on July 3, 1963. The MINUTEMAN, a three-stage solid-fueled missile with simplified production, operational, and maintenance features, represents an economic and technical breakthrough. Equipped with a nuclear warhead and having a range in excess of 6,000 miles, the MINUTEMAN can be launched within 35 seconds from buried silos placed at least 3 miles apart.

The first TITAN II squadron became operational in June 1963. The TITAN II is fueled with noncryogenic liquids, storable within the missile. This simplifies maintenance and permits quick reaction.

The TITAN II will carry a reentry vehicle more than twice as large and heavy as earlier missiles, greatly enhancing either striking power or ability to penetrate defenses.

SAC remained on 15-minute ground alert with 50 percent of the bomber force and continued its constant training for airborne alert. It increased the level of both during the Cuban crisis. The average aircrew workweek rose during the year to approximately 74 hours. A study completed in January 1963 found that an increase in the ratio of crews to aircraft from the current 1.8 to 1 to 2 to 1 would reduce the workweek by about 6 hours, but the increase could not be authorized because of the severe impact on other Air Force operations.

SAC withdrew aircraft from six oversea bases during the year. Among them, three Moroccan bases at Ben Guerir, Nouasseur, and Sidi Slimane were scheduled to pass from U.S. control in December 1963 as a result of the agreement reached with the Moroccan Government in 1959. SAC also withdrew from Kindley AFB, Bermuda, and Churchill and Frobisher RCAF stations, Canada, because they were no longer required following the phasedown of the B-47/KC-97 force.

Air Defense

To provide an effective air defense force and associated warning and control systems is a principal Air Force mission. Air defense furnishes the tactical warning for our offensive forces and complements the counterforce effort through identification and engagement of intruding air forces. The Air Force maintains and operates the DEW line and the BMEWS, the SAGE control system, the nuclear weapon alarm system, and the Spacetrack portion of NORAD's Space Detection and Tracking System (SPADATS). It also provides the bulk of NORAD's interceptor aircraft and missiles and approximately 70 percent of the 175,000 NORAD personnel.

Currently and in the immediate future two critical air defense problems confront the Air Force—defense against advanced manned bomber systems and defense against ballistic missiles. The existing air defense system was developed to counter the Soviet long-range bomber force, currently made up of Bison and Bear heavy bombers, together with Badger and a few Blinder bombers. The last aircraft, specifically designed for air defense, entered the inventory in March 1961. Since our interceptor systems are aging, intensive study is being given to their modernization in the years ahead.

Active defense against ballistic missile attack coming from points on land and sea remained a critical problem. For the future we may also face threats from space.

To increase the survivability of Air Defense Command (ADC) interceptors in the event of an ICBM strike, the Air Force had previously placed one-third of the force on a 15-minute alert, in line with BMEWS detection capabilities. In fiscal year 1963, ADC completed the first phase of a new dispersal program, involving the rotation of aircraft and crews to a number of predesignated points. At the beginning of the Cuban crisis, ADC dispersed 173 interceptors to 17 bases within 3 hours. Dispersal plans will be further elaborated during fiscal year 1964.

The air defense force structure remained essentially unchanged, with 18 wings distributed among ADC, the U.S. Air Forces in Europe (USAFE), the Pacific Air Forces (PACAF), and the Alaskan Air Command (AAC). Modification of the F/TF-102 interceptor to incorporate the infrared search and track system was under way, but the Air Force canceled a partially completed contract to fit it with the AIM-26 FALCON air-to-air missile and later asked for new bids. Proposed improvements to the F-101B/F and F-106A/B, estimated at \$219 million, were undergoing final cost analysis and funding review. In December 1962, BOMARC B (MIM-10B) production ended with the delivery of the final missile to the Royal Canadian Air Force. The complete BOMARC interceptor force consisted of 10 squadrons, 8 sited in the United States and 2 in Canada.

The U.S. air defense problem in fiscal 1963 reflected the changing nature of the threat as the Soviet offensive capability continued its shift in emphasis from aircraft to missiles. At the request of the Secretary of Defense, the Air Force established in January 1963 a special study group to carry out a comprehensive study of continental air defense. The study group report forwarded to the Secretary of Defense on May 15, 1963, provided a basis for major decisions on air defense weapon and control systems. The report considered the reduced air-breathing defense needs for the 1965-75 period and the possible reshaping of the ground environment. Headquarters, USAF, was giving the report a detailed review at the close of the fiscal year.

Some spin-off implementation of the air defense review was immediately apparent. Principally, the Continental Aircraft Control and Warning System (416L) was phased down, since it proved practically impossible to harden this system against nuclear attack. In May 1963, the Air Force began to close down 6 SAGE centers and 17 long-range radars. Realignment of the remainder of the system is expected to be completed by December 1963. The Air Force approved a NORAD recommendation that 28 intermediate warning radar stations of the main DEW line be phased out because of the reduced low altitude threat and improved coverage given by the 40 rotating search radars. This will result in a saving of \$4.4 million annually. The Alaskan Air Command also closed down three manual radar

stations as no longer necessary. In March 1963 the Air Force placed into operation a new airborne automatic detection and communication system known as ALRI (Airborne Long Range Input) which will provide a seaward extension of SAGE. ALRI is installed aboard modified aircraft operating out of a headquarters at Otis AFB in Massachusetts on coastal patrol from 100 to 200 miles out to sea. The first of four geographic aerial stations to be positioned off the Atlantic coast was activated in the vicinity of the Texas Towers, which terminated operations in March 1963. ADC took delivery of 17 automated ALRI aircraft for the early warning and control fleet.

Work continued on schedule on the Back-Up Interceptor Control (BUIC) system. Phase I, the manual system, became completely operational in October 1962. The Air Force let the contract for the first 17 computers required for Phase II (semiautomatic control) early in the fiscal year. The third and final BMEWS station, at Fylingdales, England, was expected to become operational in September 1963.

On July 12, 1962, Generals Curtis E. LeMay and George H. Decker, the Air Force and Army Chiefs of Staff, signed an agreement to unify the air defense of oversea areas. This important agreement was based on the principle that integrated air defense under a single commander is essential to successful theater operations. A combined organization, specific Service responsibilities, and joint concepts of employment were delineated.

Tactical Air

USAF tactical fighter, bomber, missile, reconnaissance, and airlift forces are distributed among TAC, USAFE, PACAF, and MATS and tailored to counter a variety of threats. They offer options of response ranging from employment of diversified conventional munitions to nuclear weapons. TAC forces are rapidly deployable throughout the world, providing flexible and mobile combat forces for the operational air component—the Air Force Strike Command (AFSTRIKE)—of the U.S. Strike Command (USSTRICOM). USAFE and PACAF provide any required tactical air support to the unified commands in Europe and the Pacific.

Within 48 hours after receiving orders in the Cuban crisis TAC moved fighter and reconnaissance aircraft to southeastern U.S. bases and brought them to full alert. During the same period, TAC and MATS airlifted thousands of personnel and thousands of tons of cargo.

Progress was made toward the current objective of a modernized tactical fighter force of 14 F-4C and 7 F-105D wings. TAC completed reequipping one F-105 wing and added a second. PACAF

completed conversion of one wing from the F-100 to the F-105 and began converting another. Delivery of the F-105F, two-place version of the F-105D, began in the fall of 1963. The F-105F is being procured in some quantity to provide all-weather training, while retaining its ability to perform tactical missions. The F-4C procurement program was doubled in size, and conversion of wings will begin during the coming fiscal year. This two-place, twin-jet all-weather plane, is the Air Force version of the Navy Phantom II. Having both high performance and great flexibility, it can operate above 50,000 feet and Mach 2 or at relatively low altitude and speed. The Air Force borrowed 27 Phantom II's from the Navy during the spring and summer of 1963 to train aircrew instructors and maintenance crews. Two others were used for test purposes.

The Air Force increased the quantity and variety of missiles on order for the tactical forces. The AGM-12 BULLPUP was delivered in large quantity. An adaption kit makes it usable with a dummy warhead for training, with a conventional warhead, or with a nuclear warhead. The AGM-45 SHRIKE, AIM-7D SPARROW, and AIM-4D FALCON were also placed on order for fiscal year 1964 procurement. The SHRIKE is an air-to-ground missile procured through the Navy, and the other two are air-to-air missiles.

The MGM-13B MACE augmentation program in USAFE advanced satisfactorily and should be completed during the first quarter of fiscal year 1964. Hard site construction for USAFE's MGM-13C continued to be a major problem, but training launches demonstrated improved reliability and accuracy.

The Air Force increased its counterinsurgency capability in several ways. It introduced new tactics and equipment at the USAF Special Air Warfare Center at Eglin AFB, Fla., and raised both the 1st Combat Applications Group and the 1st Air Commando Group to wing status while adding an additional commando fighter squadron to the force. Other Air Force research went into developing or improving nonnuclear munitions intended for levels of conflict ranging below that of general war. These munitions included incendiaries, air-to-surface missiles, antipersonnel weapons, and aerial mines. One example of improvement was modification of the standard 750-pound bomb to increase fragmentation at low altitudes. The new tactical fighters possess the versatility to deliver a wide range of these weapons with maximum effectiveness under a variety of conditions.

AFSTRIKE, comprising all combat-ready forces of TAC, continued an extensive program of joint training with Army ground forces. In August 1962, USSTRICOM, supported by MATS, carried out SWIFT STRIKE II in the Carolinas. This limited war exercise involved four Army divisions, six tactical fighter squadrons, two tactical reconnaissance squadrons, and necessary airlift. For the first

time the exercise included simulation of unconventional warfare, with participation by 26 specially equipped aircraft. Altogether 70,000 personnel—including 5,000 from the Air Force—and 500 aircraft took part. A second major exercise, COULEE CREST, took place in April and May 1963 in central Washington. Two joint task forces participated in an initial air battle and subsequent tactical maneuvers, including airborne assault landings. Besides the TAC fighter and reconnaissance forces, MATS, TAC, and the AFR supplies troop carrier squadrons, and the ADC contributed a force of interceptors. Such exercises resolved many operational and planning problems for USSTRICOM.

Air Transport

Efforts to modernize air transport forces, particularly those of MATS and TAC, through the acquisition of C-135 jet and C-130E turboprop transports brought to MATS 4 new C-135's, completing its fleet of 45. The Air Force also accepted delivery of 80 C-130E's, with 46 going to MATS and 34 to TAC. The improvement in airlift resources was especially valuable to meet concurrent emergencies, such as the Cuban crisis and the airlift of arms to India. Nevertheless, the pyramiding demand for military airlift has resulted in hard-core requirements that cannot be met in the years immediately ahead. For this reason the Air Force has ordered additional C-130E's while awaiting production of the C-141.

Air transport resources were consolidated near the end of the year when the Air Force Logistics Command transferred its two logistic support squadrons to MATS. This action responded to recommendations by Headquarters, USAF, and a subcommittee of the House Committee on Armed Services.

During fiscal year 1963, MATS expenditures for commercial overseas airlift rose sharply to \$211.9 million. Transporting passengers and cargo cost \$164.1 million, and delivering the mail cost \$47.8 million. In addition, MATS expended \$41.95 million for commercial air service within the continental United States and Alaska in support of QUICKTRANS, LOGAIR, and other domestic transport.

During the year the Air Force decided that turbine-powered aircraft would be used exclusively for Defense movements overseas unless economically or operationally infeasible. Civil carriers, to the maximum extent possible, would be utilized within the normal areas of commercial operation as established by the Civil Aeronautics Board. In fiscal year 1964 the Air Force will procure airlift by exercising options with carriers meeting all terms of their contracts, and new carriers will not be solicited unless these options fail to cover adequately current requirements. It was also decided that all current or potential carriers would be notified that acquisition of turbine-

powered equipment could not be based on military requirements alone. After fiscal 1964, procurement of airlift would depend in part on the success of carriers in expanding their civil business.

The Civil Reserve Air Fleet (CRAF) increased its potential support of MATS operations through the addition of large jet passenger aircraft. The number of member companies rose to 25, of which 15 were also MATS contract carriers. A revised concept of mobilization, contained in fiscal year 1964 contracts, described three separate stages of emergency conditions under which callup would be determined by the Secretary of Defense or the President. This will enable the participating airlines to respond selectively to varying situations along predetermined lines, leave control of carrier operations during emergencies with each company, and eliminate the need for the old CRAF Operations Board. In another innovation, the Department of Commerce, in response to a DOD request, allocated a number of commercial aircraft to form the Domestic CRAF. The action was taken to insure satisfactory operation of LOGAIR and QUICKTRANS airlift systems during periods of national emergency, since the regular CRAF was committed to oversea operations. The Air Force again sponsored a bill authorizing the President to take control of transportation systems during national emergencies short of war.

Continuing the trend that began in 1960, MATS devoted a still higher proportion of its effort to special military airlift requirements, while almost all routine passenger and a large percentage of regular cargo channel traffic went to contract carriers. Military requirements included support of general, limited, and cold war situations, frequently emergency in character; joint training exercises; tests of strategic mobility; tests of war plans; and movement of outsize and hazardous cargo. MATS and USAFE transport forces also responded to numerous humanitarian appeals.

A peak in MATS operations occurred between October 1 and November 20, 1962. Under the impact of the Cuban and Indian crises, MATS flew approximately 99,000 hours and 3,800 missions, about 9,000 hours and 1,000 missions more than normal. During the same period, MATS also supported Operation DEEP FREEZE in the Antarctic, the United Nations in the Congo, and Joint Task Force 8 in the Pacific; participated in joint exercises THREE PAIRS, LONG THRUST, SOUTHERN EXPRESS, and BLUE WATER; met the Army's airborne training requirement; and conducted humanitarian airlifts to Bolivia, Venezuela, and Guam.

In the Cuban crisis, MATS, TAC, and CONAC aircraft moved more than 10,000 personnel and 8,000 tons of cargo to the southeastern United States and Guantanamo. MATS airlifted more than 800 tons of badly needed tactical equipment from various oversea points

and carried out modification of many C-124 aircraft to perform airdrops.

The aerial resupply of DEEP FREEZE involved an airlift from New Zealand to an ice landing strip at McMurdo Sound and airdrops from this point to outlying Antarctic stations and trail parties. Under these hazardous conditions, MATS aircraft in December landed 786 tons of supplies and equipment and airdropped 1,536 tons without incident. For support of the U.N. Congo effort, MATS continued its airlift on a special assignment basis. Since it began in July 1960, the MATS Congo airlift had logged 56,600 flying hours through June 30, 1963.

The largest of the joint training exercises supported by MATS was SWIFT STRIKE II in August 1962. MATS flew 1,531 missions in 27,500 hours, moving 20,000 troops and 15,000 tons of cargo. TAC and CONAC transports flew 1,850 sorties in 3,650 hours during the assault phase, airdropping 836 tons of equipment and 8,085 troops and landing 2,900 tons and 5,339 troops.

MATS and USAFE performed many humanitarian and goodwill missions. In late November 1962, MATS delivered 1,680 tons of relief supplies and transported 800 rescue workers to assist victims of the typhoon in Guam. MATS or USAFE transports performed similar mercy missions for victims of an earthquake in Iran in September 1962, a flood in Morocco in January 1963, an earthquake in Libya in February, and devastating fires in Chile and Panama in June. MATS also airlifted 1,500 tons in support of Project MOUNTAIN TOP, part of Pakistan's economic development program. One MATS C-124 airdropped 1,543 tons of grain in 75 sorties to relieve the plight of starving natives in Tanganyika.

Despite heavy emergency demands, MATS military airlift established an outstanding safety record. The major accident rate dropped to 0.94 per 100,000 flying hours, and for the second consecutive year there were no passenger fatalities.

Specialized Operational Services

The Air Force Communications Service (AFCS), in its second year of operation as a separate command, completed consolidating the communication functions of all major USAF commands except those of ADC and SAC. A Headquarters, USAF, decision postponed indefinitely their transfer. The AFCS took over the Alaska Communication System from the Army in July 1962. The AFCS serves both public and private communication needs in Alaska. To improve the system, the Air Force contracted for two studies, one to examine the rate structure and the second to study organization and management. Meanwhile, the Department of Defense sought congressional authori-

zation in January 1963 to dispose of any part of the system if such action were found to be in the public interest.

The Air Force Communications System (AIRCOM) was modernized with the completion of Quickfix, the short-term high frequency program, and the start on a large-scale conversion to wide-band operation in the very high frequency and ultra high frequency spectrums. These improvements are integrated with the midterm modernization program of the Defense Communications Agency (DCA). AIRCOM now constitutes approximately 75 percent of the Defense Communications System (DCS), and AFCS operates AIRCOM under DCA direction.

In February 1963 the Air Force transferred the fully operational Air Force Data Communications System (AFDATACOM) to the DCA, which redesignated it the Automatic Digital Network (AUTODIN). This data-transmission network consists of five automatic electronic switching centers in the United States with the ability to handle 550 tributary stations and interconnecting trunks. It also extends to oversea areas and includes manual data-relay centers in Europe, the Middle East, and the Pacific.

The Air Weather Service (AWS) continued to provide meteorological support to the Air Force and Army through its worldwide network. Work proceeded on the expansion and modernization program leading to a global semiautomatic observing and forecasting system (433L), but program schedules were extended by 2 years. By June 30, 1963, the Air Force had obligated about \$16 million of the \$80 million that the program is expected to cost.

Continuing its geodetic survey of the globe, the Air Photographic and Charting Service (APCS) mapped for the first time the mouths of the Orinoco and Amazon Rivers and the adjacent jungle areas in South America. APCS also surveyed the principal islands of the southwest Pacific and the Hawaiian archipelago, placing them on a common geodetic basis. The Air Force also evaluated geodetic data obtained from the successful flashing-light experiment on the Project ANNA satellite, launched October 31, 1962.

In its first year of responsibility for directing all air rescue functions at USAF bases, the Air Rescue Service (ARS) reorganized the local rescue system, reducing the number of its base units from 75 to 64. Actual rescue requirements increased, partly dictated on the national space program. The Secretary of Defense approved an increase in ARS strength from 11 squadrons to 12 and authorized 90 fixed-wing aircraft and/or helicopters per squadron instead of 65.

During fiscal year 1963, ARS local base helicopters flew 9,481 missions, saved 1,249 lives, and assisted 7,814 distressed persons. Fixed-wing rescue squadrons flew 17,783 hours on missions, saved 74 lives,

and assisted 230 distressed persons. As inland coordinator under the National Search and Rescue Plan, ARS coordinated 608 missions involving 12,683 sorties. These required 23,564 flying hours and involved 2,986 persons, of whom 1,816 were rescued, 1,170 assisted, 445 found dead, and 146 never located.

III. Manpower

The pressure to man and service the complex weapon systems with fewer but more technically and professionally qualified personnel was maintained in fiscal year 1963. The Air Force was able to meet quantitative requirements through voluntary enlistment, reenlistment, and officer procurement and training programs. However, inadequate pay, lack of opportunities for promotion, and unsatisfactory living standards on many Air Force bases have made it difficult to hold some of the most competent people. This was especially true of junior officers and first-term airmen who were trained at high cost in technical skills.

This problem was Defense-wide and legislation to increase the pay of military personnel, resulting from the OSD (Gorham Committee) study of military compensation, passed the House of Representatives on May 8, 1963, and was before the Senate at the end of June. The substantial increase in military pay, the first since 1958, was expected to help in holding well-trained, experienced men in the military service. Nevertheless, if the principle of "comparability" of Federal salaries with industrial salaries, recommended by President Kennedy in 1962, is to be fully implemented, further legislation is needed.

Total USAF military manpower decreased by about 14,600 during fiscal year 1963—from 884,025 on June 30, 1962, to 869,431 a year later—to include 133,763 officers and 735,668 airmen. About 24,600 of the officers and 185,600 of the airmen were assigned overseas. During the year the number of USAF civilian employees dropped by nearly 10,000—from 306,181 to 296,982. This civilian reduction stemmed from an Air Force decision to absorb in 1963 a large part of the substantial cut programed for fiscal year 1964.

The 25,695 ANG and AFR personnel called up during the Berlin crisis in calendar year 1961 remained on active duty until August 31, 1962. Most of the 14,056 reservists called up for the Cuban crisis in October 1962 were released on November 28, 1962, but nearly 2,000 remained longer to complete administrative tasks or, in some instances, to avoid undue hardships.

Manpower Management

A manpower validation program improved the use of Air Force military and civilian manpower during the fiscal year. Survey teams, using management engineering techniques, developed new standards of performance for 748 additional work centers. This brought the number of centers surveyed since 1960, when the program began, to 1,029. Over 2,600 manpower spaces were reassigned to more critical functions, bringing the total number of spaces distributed since the program started to more than 6,500.

The following table shows the general utilization of USAF military manpower at the end of June 1963:

	Number	Percentages
Operations.....	598, 490	69
Support.....	137, 781	16
Training.....	131, 161	15
Miscellaneous.....	1, 999	-----
Total.....	869, 431	100

Officers

The requirement for young pilots has increased substantially as the Nation prepared for military situations less than general war. The Air Force has a surplus of pilots in the older age group but will soon lose all of them. One increase in the pilot training rate was authorized during the year and another one proposed by the Air Force in June 1963.

The excess of pilots in the older age group required that certain of them be excused from flying. Beginning July 1, 1963, a program will go into effect to excuse officers who are over 45 years of age and have completed 22 years of flying service. Exceptions include officers serving in cockpit positions, officers holding positions at wing level or below that require an aeronautical rating, and officers who have kept their qualifications current and fulfill all requirements in tactical, test, or training aircraft. Commanders must insure that these exceptions will not reduce career opportunities for younger officers.

The Air Force since fiscal year 1960 has waived flying requirements for most of 6,000 pilots with 15 years of rated service. Flying hours have been reduced by 670,000 and about \$28 million have been saved.

The shortage of Air Force officers qualified for research and development (R&D) work became more acute this year, and the deficiency

for fiscal year 1964 is expected to reach 800. The Air Force Systems Command reviewed its R&D positions and found many essentially nontechnical in nature. Conversion of 336 jobs to nontechnical manpower spaces released qualified R&D officers for work in important developmental programs. Similar studies by other commands were expected to be completed by September 1963.

With the timely assistance of the Congress, the Air Force was able to promise reasonable promotion opportunities to both regular and reserve officers. The 88th Congress extended through June 30, 1965, the 1961 authorization for 4,000 lieutenant colonels in excess of the ceiling set by the Officer Grade Limitation Act. This extension helped to relieve the Air Force's grade vacancy shortage.

Airmen

During fiscal year 1963, many senior noncommissioned officers were assigned increased responsibilities traditionally given to commissioned officers. Approximately 2,000 officer positions were converted to senior NCO jobs, and more conversions were scheduled for fiscal years 1964 and 1965. This practice both raised the level of NCO performance and made officers available for more technical and professional work. The program places senior NCOs in positions of greater leadership and will continue to be emphasized.

The Air Force uses proficiency pay to attract and retain airmen who possess critical skills, particularly those requiring a high investment in training. Congress authorized three proficiency pay ratings—P-1, P-2, and P-3—with maximum extra pay of \$50, \$100, and \$150 per month, respectively. Through 1963, however, OSD limited P-1 pay to \$30 per month, P-2 to \$60, and made no provision for the P-3 rating. Although the Air Force originally planned to offer proficiency pay to 15 percent of its airmen by fiscal year 1962, budgetary limitations reduced proficiency payments to 11.5 percent of our airmen.

This program has helped to retain airmen who are qualified in critical technical skills, but the Air Force believes that its full benefits cannot be obtained under the restrictions. The reenlistment rate for first-term airmen in fiscal year 1963 remained near 35 percent.

Women in the Air Force

At the end of June 1963 there were 5,514 women in the Air Force, an increase of 28 from last year. This included 710 officers (98 percent of the objective) and 4,804 airmen (96 percent of the objective). Twenty-five percent of the officers and 10 percent of the enlisted women served overseas. WAF officers served in all officer positions except those requiring aeronautical ratings or combat duties.

In fiscal year 1963 the WAF obtained 98 graduates from Officer Training School, 2 less than the goal. Of those receiving commissions, 13 percent had majored in education, 10 percent in biology, 10 percent in history and government, 7 percent in mathematics, 7 percent in English, 6 percent in chemistry, 6 percent in journalism, and 6 percent in business administration. The remaining 35 percent majored in a wide variety of subjects. WAF officer retention beyond the original 4-year commitment—45 percent—compares favorably with male officers.

The Air Force uses most of its enlisted women in such specialties as personnel, administration, medical duties, communications, statistics, air transportation, air traffic control, accounting, and finance. In fiscal year 1963 the WAF recruited 1,955 enlisted women, 98 percent of the recruitment objective. All but 1 percent were in the first two mental groups, far above the percentage among male enlistees. Thirty-eight percent of the enlisted women were serving in a second or later enlistment.

Civilian Personnel

The gradual trend toward a higher ratio of salaried employees to Wage Board (blue collar) employees, reflecting the impact of technological advances on Air Forces operations, continued during the year. In 1955 the ratio stood at 42 percent salaried and 58 percent Wage Board; in 1962 and 1963 the ratio was 52 percent salaried and 48 percent Wage Board. Overseas, the Air Force employed a number of local nationals indirectly through agreements with their governments. This year their number dropped 4,000 to a new low of 38,400, the lowest figure since before the Korean war.

The turnover rate of full-time civilian employees changed very little; the average monthly accession rate dropped from 1.6 percent to 1.4 and the separation rate rose from 1.5 percent to 1.7.

As part of a continuing self-evaluation, the Air Force surveyed the effectiveness of civilian personnel management at 49 installations, 9 of them overseas. These surveys were supplemented by 2 regular and 22 special inspections by the Civil Service Commission. In February the Civil Service Commission informed the Air Force that the departmental personnel management program was highly effective.

The Special Assistant to the Secretary of the Air Force for Manpower, Personnel, and Reserve Forces asked for a study to determine what could be done under the defense scientist immigration program to obtain the services of foreign scientists and engineers in badly needed specialties. At the end of the fiscal year the Air Force was studying improved procedures to bring such talent into the United States.

In the area of equal employment opportunities, the President's Committee on Equal Employment Opportunity requested and received special reports entailing an exact count of Air Force employees belonging to minority groups.

The Air Force received 96 employee complaints during the year, 62 relating to discrimination and 34 to other grievances and appeals. This was an increase of 56 over fiscal year 1962.

This period witnessed the first full year of operation under Executive Order 10988, entitled Employee-Management Cooperation in the Federal Service. Six employee unions at five Air Force bases were granted "exclusive recognition," the recognition encompassing a whole base in each instance. At Chanute AFB, Ill., the professional employees are in one union and all other employees in another. The Air Force also granted formal recognition to 73 local employee organizations and informal recognition to 85.

During fiscal year 1963 the Air Force set up a three-phase program to facilitate civilian employee transfers, to encourage career development, and to insure that vacancies are filled with the best qualified people available. The first phase was accomplished by issuing a regulation establishing policy on moving employees within the Air Force and authorizing the major commands to move employees within their areas to meet specific needs. The second phase established procedures to insure that all qualified employees within the Air Force would be considered in the filling of vacancies in grades GS-15 and above. The third phase, to provide for the orderly interchange of career employees between the United States and oversea installations, was still being developed as the fiscal year ended.

The number of supergrade positions allotted to the Air Force increased from 86 to 98 to include 67 GS-16's, 23 GS-17's, and 8 GS-18's. Public Law 313 positions remained at 144, with 127 of them filled. In June 1963 the Air Force asked the Civil Service Commission for 51 additional supergrade positions, as authorized in the Federal Salary Reform Act of 1962.

The incentive awards program continued to encourage improvements in Air Force operations. Of 95,850 suggestions submitted by employees, 21,050 were adopted, and the Air Force received an estimated \$48.9 million in first year benefits.

Designs were completed for the Air Force Civilian Award for Valor and the Air Force Command Civilian Award for Valor, providing distinctive medals, lapel emblems, rosettes, and certificates for acts of heroism and courage. A firefighter at Dobbins AFB, Ga., won the first Air Force Civilian Award for Valor as a result of his heroism on the occasion of the crash of a Navy F-9F aircraft.

IV. Military Training

The diversity of Air Force missions increased the demand for educated and trained personnel. Despite the growing importance of missiles, preparation for conventional and local warfare greatly increased the need for pilots, particularly in the tactical forces. It was in the maintenance of a training and educational program large and flexible enough to school young officers and airmen that the Air Force experienced some of its greatest difficulties.

Flying Training

The Air Force graduated 1,740 pilots from its eight flight training bases located in five States, an increase of 119 over the previous year. This total included 1,433 for the Air Force, 58 for the Air National Guard, 150 for foreign countries in the Military Assistance Program (MAP), and 99 for other countries not in the assistance program. Navigator graduates totaled 1,185, a decrease of 96 from last year's total. Of these, the Air Force obtained 1,137; ANG, 40; and MAP countries, 8.

In August 1962, as it became clear that current pilot training rates were too low to meet future requirements, OSD approved an increase to 2,000 per year by 1966, plus 224 for MAP and ANG. The Air Force estimated that even this higher rate would fall more than 7,000 pilots short of meeting the need by fiscal year 1971. It proposed to OSD on June 19, 1963, to increase the rate to 3,400 by 1968.

To achieve the approved 2,000-per-year program required the relocation of a SAC mission from Laughlin AFB, Tex.; transfer of T-28 training for MAP students from Moody AFB, Ga., to Randolph AFB, Tex.; and addition of new facilities at Laredo AFB, Tex. The first two actions were under way by the end of June, but rehabilitation of Laredo is awaiting authorization and appropriation by the Congress. The approved 2,000-per-year rate by 1966 will be met if Laredo is able to assume its full training load by the first quarter of fiscal year 1965.

The influx of South Vietnam students into the T-28 course, set for early in fiscal year 1963, did not materialize until the third quarter. To avoid overloading the course, some of the students scheduled to enter in fiscal year 1964 were shifted to the Navy.

Technical Training

Technical training graduates totaled 128,077, only 2,700 more than in fiscal year 1962. The previous trend toward higher enrollments in basic military and technical training courses leveled off in 1963 largely due to 14,644 fewer enlistments of male airmen without previous military service. Another leveling factor was the imposition by Headquarters, USAF, for the first time, of a limit on the number of students who could attend certain technical training courses in temporary duty (TDY) status. This action cut TDY school quotas by about 13,000 and reduced the expenditure of TDY travel and per diem funds.

A new Air Force plan to improve on-the-job technical training is to be put into effect over the next 2- or 3-year period, to develop both the career potential and job proficiency of airmen. Unit commanders will be responsible for teaching newly assigned airmen the details of specific jobs to be done, such as jet engine or radar maintenance. The airmen themselves will be responsible for learning the broader aspects of their career fields through correspondence courses and off-duty study.

The Air Force continued to emphasize the physical fitness of its personnel. It adopted the Royal Canadian Air Force's physical conditioning manual, which sets forth a single, progressive program that can be followed without loss of time from duty. In other training, the Air Force rendered valuable assistance to the Peace Corps by furnishing a training center plan uniquely adaptable to construction programs in underdeveloped countries.

Counterinsurgency Training

The vigorous effort begun in early 1962, to train and educate Air Force people in counterinsurgency strategy and tactics, led to the introduction of counterinsurgency instruction into such professional and special schools as the Air War College, Air Command and Staff College, and Warfare Systems School. Counterinsurgency indoctrination programs were also set up in oversea commands. Air University conducted an orientation course in July 1962 for 248 persons and filmed the presentations as the framework of an educational program that could be distributed. Subsequently, headquarters staff personnel of all major commands, separate operating agencies, and numbered air forces viewed 4½ hours of film on counterinsurgency. A series of films, plus accompanying written materials, was distributed to more than 70 Air Force schools and units.

To support training operations at the Special Air Warfare Center, the Air Force designed a second phase of counterinsurgency training to prepare personnel for special assignments. Air University, with

support from TAC and the center, developed a 3-week course of instruction—2 weeks at Maxwell AFB, Ala., and 1 at the center and the Air-Ground Operations School, Eglin AFB, Fla. Fifty-nine officers assigned to duty in southeast Asia entered the first course on March 11, 1963, and a second class of 75 students entered in June. Air University scheduled six more classes for fiscal year 1964, with a maximum of 75 students per class.

Professional Education

Legislative proposals to deal with the long-standing ROTC problem were developed during fiscal year 1963. The Air Force wished to establish in colleges a 2-year officer education program separate from the regular ROTC course. Under a legislative proposal, re-submitted to the Bureau of the Budget in June 1963, each military department could maintain a 2-year ROTC program in lieu of or in addition to current programs and offer scholarships to selected students who agree to serve 4 years on active duty after receiving their commissions.

Enrollment in basic AFROTC is elective in 110 of the 186 colleges and universities now offering AFROTC training, as 12 additional institutions made enrollment a voluntary matter during the 1962-63 school year. AFROTC cadets must complete 28 consecutive days of summer training between their junior and senior years of college. About 3,965 cadets completed this training in 19 camps during the summer of 1962. Approximately 5,675 were scheduled for summer camp in 1963. There were 3,693 AFROTC graduates during the year, out of 102,339 enrolled, and 3,393 received commissions in the Air Force Reserve.

The Air Force Academy graduated 499 cadets in June 1963. All but 1 of them received commissions, including 489 in the Regular Air Force, 1 in the Army, 3 in the Navy, and 5 in the Marine Corps. The Air Force also commissioned 49 graduates of the U.S. Military Academy and 56 graduates of the U.S. Naval Academy. Of the 594 graduates commissioned in the Air Force, 391 will receive pilot training.

The scholastic accomplishments of Air Force Academy students were outstanding. Two graduates won Rhodes Scholarships, one received a Woodrow Wilson National Fellowship, four won Fulbright Scholarships, and seven obtained National Science Foundation Graduate Fellowships. The Academy received accreditation from the Engineer's Council for Professional Development, and 79 graduates of 1963 were the first to receive the degree of Bachelor of Science in Engineering Science. Cadets earn this degree by taking 18 to 23 hours of engineering in addition to the prescribed curriculum.

The Air Force sponsored a legislative proposal to raise the student enrollments of the three Service academies to 4,393 each, the current authorized enrollment at the Naval Academy. The increase is considered necessary to help raise the educational level of the future officer corps.

To achieve at least a 95 percent level of college graduates among its new officers, the Air Force eliminated the officer candidate and aviation cadet schools in favor of the Officer Training School (OTS), which accepts only college graduates. OTS graduated 5,375 students during the year, and for the first time exceeded the number graduated from AFROTC.

The Officer Candidate School (OCS) graduated its last class of 119 students in June 1963. Its training function will be assumed by the Airman Education and Commissioning Program, in keeping with Air Force policy to give commissions only to college graduates.

In August 1962 the George Washington University extension center at Maxwell AFB, Ala., began accepting students of the Air Command and Staff College for study toward bachelor and postgraduate degrees. The center had been opened a year earlier for students of the Air War College. This voluntary, off-duty program leads to bachelor degrees in general studies and business administration and master degrees in business and public administration. Other off-duty courses are available for Air Force personnel, such as the program devised for MINUTEMAN launch-control officers.

The Air Force Institute of Technology (AFIT) has the primary function of training officers in critical scientific and engineering specialties. AFIT's School of Systems and Logistics was authorized to award the degree of Master of Science in logistics management. Students completing the graduate course in June 1963 were the first to receive this new degree.

In August 1962 an Air Force task force began to study the steps that could be taken to increase scientific education. It recommended expansion of AFIT's student body to 4,500. For fiscal year 1963, OSD approved a program to permit 1,639 Air Force officers to work toward degrees in civilian institutions, plus the 332 enrolled in the various courses of the resident school at Wright-Patterson AFB, Ohio. In fiscal year 1964 the AFIT program will be limited to 1,200 graduate students in civilian institutions and 350 in resident school courses. A limitation of \$2.9 million for tuition to finance officer education through AFIT left the program about \$1.1 million short of its fiscal year 1964 requirement. The Air Force subsequently adjusted its funds to carry out the program.

A study of foreign language needs, completed in November 1962, led to the establishment of a requirement that all officers have a working knowledge of a foreign language. Headquarters, USAF, with the

assistance of the Air Force Academy, planned to begin in July 1963 an intensive foreign language training program at McGuire AFB, N.J. It will use the academy's method of teaching proficiency in reading and speaking French, Spanish, and German. The course involves 3 off-duty hours of language study a day for 8 weeks. At the conclusion of the training, officers will be tested in language proficiency. Airmen may also enroll in language training courses.

Reserve Forces

During the Cuban crisis of 1962, the air reserve forces proved their effectiveness a second time within 2 years. On the night of October 27, 1962, the President ordered eight troop carrier wings (24 squadrons) and six aerial port squadrons to active duty effective the next morning. Within 24 hours, more than 93 percent of the personnel of these units were present for duty. Troop carrier units reported with 75 percent of their aircraft operational, and they could have been deployed on the first day. Even before the recall, Air Force Reserve (AFR) troop carrier squadrons had been flying supplies and equipment into bases in the southeastern United States. Air National Guard (ANG) heavy transport units flew MATS cargo to all parts of the world, permitting the concentration of MATS aircraft on priority deployment missions.

Beginning on October 23, reservists from about 30 recovery units volunteered to assist Air Force dispersal and Army deployment operations. For 6 weeks, until December 6, they worked 6,000 man-days for SAC, ADC, and Army units. Similarly, 26 ANG and several AFR bases supported dispersal operations of the major combat commands. Their performance drew high praise from the Secretary of the Air Force, the commander in chief of SAC, and from other Air Force and Army commanders who utilized their services.

Personnel losses became a serious problem during fiscal year 1963 as reservists completed their periods of military obligation. Some well-trained airmen dropped out of the program upon completion of enlistments because of employer or family pressures. Drill-pay strength (essentially Ready Reservists in units plus some assignees) dropped 5 percent, from 124,620 at the end of August 1962, when the units returned to inactive status after the Berlin callup, to a low of 118,807 at the end of February 1963. On June 30, 1963, Ready Reserve personnel totaled 242,707—74,325 in the ANG and 168,382 in the AFR—a loss of almost 11,100 since June 1962, about 4½ percent of the total. The Standby Reserve ended the fiscal year with 116,874.

The AFR recovery units held their personnel strength, but budget restrictions kept their share of the drill-pay spaces to 18,000. Despite the strength limitations, recovery units improved their effectiveness.

Shortage of equipment, especially aircraft, plagued the reserve forces for an extended period. After the Berlin crisis, the Air Force retained most of the ANG F-104's and F-84's and the AFR C-124's in its active inventory. In addition to the C-124's retained by the Air Force, the AFR lost 24 C-119's and 6 C-123's to MAP. Aircraft remaining in the ANG and AFR were reapportioned among the units, but many squadrons were left with too few to maintain combat effectiveness or aircrew readiness. The situation will remain serious until the Air Force procures enough new aircraft to allow reassignment of older models to the reserves.

The three ANG F-104 units that served in Europe during the Berlin crisis were converted to other aircraft—two to F-102's and one to C-97's. ANG aeromedical transport squadrons continued their conversion from C-119's to longer range aircraft—seven squadrons to C-121's and two to C-97's.

Throughout fiscal year 1963 the air reserve forces continued to provide extra peacetime support for the Air Force airlift at little extra cost. For example, aircrews of heavy transport, aeromedical transport, and heavy troop carrier units are required to get overwater training and qualify to fly MATS routes. When MATS cargo is carried on these training flights, crew members get realistic training and the extra airlift they furnish MATS is a clear profit.

During the last half of the fiscal year, 16 ANG C-97 squadrons made over 3,500 flights, more than a third of which supported the active Air Force. They airlifted more than 6.3 million pounds of MATS cargo overseas. Five AFR heavy C-124 troop carrier squadrons also carried MATS cargo on oversea flights. The ANG continued to support air defense by holding two aircraft and four crews from each of 25 fighter-interceptor squadrons on runway alert, and its Hawaii-based squadrons performed most of the air defense function there. Also in support of ADC, almost 1,000 ANG personnel flew 188 aircraft in "striker" missions during the last half of the fiscal year to test the air defenses of the Nation.

ANG and AFR units with mobilization assignments to TAC continued to support Air Force and Army requirements. Ten AFR planes per week were assigned to a program known as CONTAC, which moved almost 10,000 passengers and about 9.5 million pounds of cargo for the Air Force. Another 10 aircraft per week provided jump training for Army airborne troops of the U.S. Strike Command. During this fiscal year, AFR troop carriers airdropped over 100,000 troops in joint exercises and training maneuvers. Also, ANG tactical fighter units conducted firepower demonstrations for Army training and participated in several exercises.

Certain steps must be taken if the reserve forces are to improve their effectiveness. High-caliber reserves must be compensated at least to the point where they do not have to make financial sacrifices. Some form of reenlistment bonus may be necessary to persuade men to stay in the reserves beyond their period of military obligation. Modern aircraft in sufficient numbers must also be provided in order to achieve the desired degree of operational effectiveness.

V. Health and Welfare

To attract and retain a professional force, the Air Force offers incentives that pay for themselves by building and maintaining high morale. These include benefits of health and safety; education and advanced specialization; spiritual, cultural, and recreational opportunities; and career advancement.

To fulfill these desired goals, the Air Force, along with the other Services, urged certain congressional actions. At midyear, new legislation increased the quarters allowances for those not furnished Government housing. The military pay act, before Congress as the year ended, would bring substantial salary increases to most military personnel.

The Air Force has developed several new honors and awards for its military personnel. The Secretary approved a new design for the Medal of Honor bestowed on Air Force personnel. An Airman's Medal replaced the Soldier's Medal, and the Air Force now has its own Good Conduct Medal. It developed means of recognizing achievements in cold war actions with honors formerly only bestowed during wartime. A new ribbon was approved for graduates of NCO academies and another for qualifying in small arms marksmanship.

Medical Service

Health in the Air Force

The health of Air Force members continued excellent. The number of persons per thousand seeking medical treatment was lower, and fewer were off duty because of medical reasons. The record has continually improved for many years, attaining a level in 1962-63 that the USAF Medical Service considered difficult to surpass. Since 1950 the admission rate to medical facilities has steadily declined, from 344 per year per 1,000 to 204 in 1962 and 199 in fiscal year 1963. The noneffective ratio of those off duty daily for medical reasons dropped from 15.8 per 1,000 in 1950 to 9.2 in 1960, 7.5 in 1962, and 7.4 in fiscal year 1963. The number of hospital beds occupied per day fell relatively, the 1958 record of 7.7 per 1,000 being cut to 5.7 in fiscal year 1963.

Improvement in the noneffective ratio by over 25 percent in the past 5 years means that 2,700 more military personnel were available for productive duty each day in fiscal year 1963 than in 1958. This is

the equivalent in manning of almost two MINUTEMAN wings. The improvement can be attributed to expansion of professional care in clinical and preventive medicine, better health education, extended consultant services, and aeromedical evacuation. The Medical Service has put greater emphasis on outpatient care and a reduction in length of hospital stay without prejudice to the highest possible professional standards. The Dental Service increased the amount of care provided to military personnel and their dependents through acquisition of modern equipment and improved clinical management.

In fiscal year 1963, Air Force medical facilities cared for a daily average of 4,226 USAF active duty bed patients—or 84 percent of the total daily average of 5,020 hospitalized. The remaining USAF patients were cared for in facilities operated by the other Services or in civilian hospitals. Active duty bed patients made up only 48 percent of the daily average of 8,776 at Air Force hospitals. Nonmilitary patients, mostly dependents, totaled 48 percent, and the remainder were from the other Services.

Since the beginning of the Medicare program in 1956, the Air Force has obligated \$167 million to it. This program provides treatment to dependents by civilian physicians and hospitals under certain limitations. During 1963 the Air Force obligated \$23.3 million; the average cost per physician's claim was about \$78 (\$2 more than in 1962), and the average cost per hospital claim rose again—to an estimated \$150.

Medical Personnel

The Medical Service considered the staffing at USAF hospitals to be adequate although the total number of medical officers and airmen declined slightly. The following table shows a few small adjustments among categories since June 1962:

	June 30, 1962	June 30, 1963
OFFICERS.....	11, 760	11, 645
(Hospital residents and interns).....	(482)	(457)
Physicians.....	3, 816	3, 652
Dentists.....	1, 940	1, 995
Veterinary officers.....	322	331
Medical Service Corps.....	2, 073	2, 069
Nurses.....	3, 430	3, 409
Medical Specialists.....	179	189
AIRMEN.....	25, 025	24, 773
Medical duties.....	21, 836	21, 508
Dental duties.....	3, 189	3, 265

The Air Force placed 802 physicians on active duty during the year. Among them, 184 had been deferred to complete residency training in specialties; 145 to complete internships; and 213 who voluntarily accepted reserve commissions. The Air Force obtained all these physicians through career incentive programs and the influence of the Universal Military Training and Service Act. The problem, primarily for economic reasons, continued to be retention of qualified specialists.

Of 127 physicians who received in-service residency training in 1963, 74 resigned upon completion of their mandatory commitments. Specialists obtained through the Berry Plan serve only 2 years. Very few have become career officers. The turnover in these two categories, plus the 2-year term of the general medical officers, causes a midsummer hiatus each year. The retention rate for physicians obtained through the "doctors' draft" was only 1.3 percent in 1963. An average of about 42 percent of all physicians on duty in 1963 were career officers, while the other 58 percent were serving a 2-year tour to satisfy service obligations. Even among the career officers, an alarming 18 percent of those eligible resigned from the service. Only 13 percent of the entire professional staff had more than 10 years of service and only 2.7 percent had more than 20 years.

The incentive program most useful to the Air Force is DOD Berry or allocation plan. Through it, the Air Force commissioned 772 medical school graduates from 1962 classes. Of these, 388 were deferred from active duty in order to complete residency training in needed specialties (bringing to 1,157 the number in residence on June 30, 1963), 266 were deferred for 1 year to complete internship, and 118 were deferred an additional year for training in various specialties.

Other career incentive programs offered training to exceptional students who planned to become career officers in the Medical Service. The 224 individuals selected during the year included senior medical students, military interns, civilian interns, dental interns, dietetic interns, physical and occupational therapy students, and students of allied sciences. In addition, the Air Force introduced a new program for early commissioning in the reserve of medical students who will train between college sessions.

Many Medical Service officers benefited from liberal opportunities for career improvement. A total of 197 officers of the various corps took graduate training courses during the year, and 347 physicians were in specialty training leading to board certification at the end of June 1963.

The Air Force had outstanding success in recruiting nurses, a difficult problem a few years ago. The success was directly attributable to the assignment of nurses to the recruiting service—20 in the field and 1 at each recruiting headquarters. But retention of nurses remains

a problem. Generally, the Air Force has recruited 600 to 800 nurses annually and lost about the same number. Flight duty with its additional pay is an attractive incentive, but less than 5 percent of the nurses are in this category. They must volunteer for flight duty, be in a career status, and pass a stringent physical examination and a special training course. Each year, about 150 achieve flight status. Graduate training toward advanced degrees is another incentive that the Air Force offers to more than 60 of its nurses.

Air Force Hospitals

SCATA is a new Air Force system of protecting medical supplies and providing emergency hospitals to save lives in a nuclear attack. SCATA is part of the Department of Defense medical war readiness plan. Casualty treatment units are being sited available to but away from Air Force bases. The nucleus is a 36-bed air transportable hospital that can be moved and set up quickly in such buildings as schools in outlying areas. The stock includes medical material for 20 to 30 days of treatment and a week's supply of food and water. In June 1963 the prepositioning was about 72 percent complete.

The Air Force had 123 hospitals in June 1963, including 99 accredited by American Hospital Association, an increase of 3 over the previous year. The hospitals, plus the 46 Class A dispensaries (up to 25 beds), contained 11,047 beds, 484 fewer than last year. The Dental Service operated 461 fixed dental facilities and 17 trailer-mounted units throughout the world, a considerable drop from last year's total of 510. Two new composite medical facilities—hospitals with special clinics or services—two dental clinics, and eight other projects (six to support the USAF School of Aerospace Medicine, Brooks AFB, Tex.) were completed. Still under construction were 10 composite facilities, 5 dispensaries, 4 dental clinics, and 7 other projects.

Veterinary Service

Air Force and Army veterinarians inspected \$1.5 billion's worth of food supplies for all military Services. More than one-third of the supplies were for Air Force bases and over 45 percent of all inspections were made for DSA. The Air Force continued to assign veterinarians to inspection duties at eight Marine Corps bases. In all inspections, Air Force veterinarians rejected \$2.4 million's worth of foodstuffs as unwholesome or below standard.

Veterinary Service officers were actively engaged in aerospace medical research, participating in research for the Joint U.S.-Argentina Commission on Foot and Mouth Disease, and instructing the people of the Azores, Morocco, and Turkey in animal husbandry and agricultural techniques.

Aeromedical Evacuation

The use of jet aircraft for aeromedical evacuation from overseas proved highly successful. The C-135 service inaugurated from Japan to California in May 1962 was expanded to pick up patients in Alaska. The Air Force experienced a delay in its plan to obtain a high-performance replacement for the C-131 in domestic aeromedical evacuation. A decision awaited completion of a cost-effectiveness study on commercial cargo aircraft to determine if one is already available for this purpose. Within the European theater, C-118's will soon replace obsolescent C-54's in aeromedical evacuation duties.

Aviation Medicine

Research studies continued or were begun on crew effectiveness, preventive and occupational medicine, public health at air bases, aviation physiology, bionucleonics, and biomedical engineering. The Surgeon General established a health education program for prevention of cardio-pulmonary diseases from cigarette smoking; initiated an extensive study of Tokyo-Yokohama asthma; studied the effects of dysbarism (decompression sickness), flying after SCUBA diving, suppressive antimalarial drugs, and oral polyomyelitis vaccine on flying personnel; and provided many specialists for NASA space projects. Medical personnel were assigned to research projects at the AFSC medical laboratories.

Chaplains

The Chief of Air Force Chaplains was raised to special staff level in the Office, Chief of Staff, during April 1963. At the end of June the Air Force had 1,117 chaplains on active duty (just 8 fewer than a year earlier), 23 under authorized strength. Although 71 chaplains were ordered to extended active duty, the Air Force lost the services of 83 others.

The Office of the Chief of Air Force Chaplains conducted a series of Catholic and Protestant missions for Air Force personnel and their families living in the Pacific area, Alaska, and the northeastern area of North America. Torah convocations were conducted for Jewish personnel and families in the same areas. The office arranged for American bishops of the Roman Catholic Church to minister to personnel in Germany, France, and Italy. Bishops of the Methodist Church also ministered in those countries, as well as in England, Spain, Greece, Turkey, islands of the Pacific, and countries of the Far East.

There were 677 religious facilities at Air Force installations, 447 of them in the United States. The total included 376 chapels and 301

chapel annexes. During the year Congress appropriated \$1.3 million for three new chapels and other new construction.

Judge Advocate General

The Judge Advocate General lost 224 officers during the year and obtained 120. The total strength on June 30, 1963, was 1,286. The Air Force had no trouble recruiting young lawyers; it even had a waiting list in 1963. But too many served only their obligated tours, and the Air Force is studying ways and means to increase retention rates.

During the year the Boards of Review rendered decisions on 787 cases. Of these, 205 were petitioned and 9 were certified to the U.S. Court of Military Appeals. The court reversed the Boards of Review in 16 cases and sustained them in 19.

The Claims Division received or reopened 1,785 claims amounting to almost \$7 million and closed claims totaling more than \$23.4 million. There were 372 claims on hand at the end of the fiscal year, involving more than \$6 million. The Tax and Litigation Division received 438 cases and closed 556 cases, with a total of 1,420 cases pending on June 30, 1963.

VI. Installations

As in the previous year, the Air Force obligated the largest share of new construction funds to provide facilities for its growing inventory of ICBMs. However, a sizable increase in construction money was allotted to the space effort, while communication and warning systems and improvements at air bases continued to receive substantial support.

Appropriations

The Air Force requested an appropriation of \$831 million for fiscal year 1963 military construction, exclusive of family housing—\$812 million for the regular Air Force, \$5 million for the Air Force Reserve, and \$14 million for the Air National Guard. The congressional appropriation (new obligational authority) totaled \$866.8 million—\$847.8 million for the regular Air Force, including \$67.7 million for family housing not requested as a direct appropriation, plus \$5 million for the Air Force Reserve, and \$14 million for the Air National Guard. Congress authorized construction amounting to \$761 million—\$743 million for the regular Air Force, \$5 million for the Air Force Reserve, and \$13 million for the Air National Guard.

Transfer of the housing funds to the Secretary of Defense's management account reduced the regular Air Force appropriation to \$780 million. This amount, supplemented with a \$216 million carryover and \$2 million in reimbursements, provided \$998 million for Air Force construction in fiscal year 1963.

New Construction

The Air Force awarded construction contracts totaling \$672 million, with approximately \$390 million devoted to the missile and space programs. Construction projects totaling \$720 million were completed. On June 30, 1963, construction projects valued at \$1.3 billion were under way, and the value of work in place totaled \$930 million.

Construction contracts for strategic forces amounted to \$184.8 million for ICBM weapon systems. The MINUTEMAN program—with the first of its missiles becoming operational in December 1962—received \$163 million (88 percent) of the allocation. Construction projects for the ATLAS, first of the Air Force ICBM weapons, neared completion. Consequently, only \$3.4 million in construction contracts were awarded for this program. TITAN I and II construction, also nearing completion, received \$16.8 million in new contracts—a major reduction from the \$62.9 million obligated to it in the

previous fiscal year. The Air Force designated approximately \$1.6 million for construction in support of the Advanced Ballistic Reentry System (ABRES). Contract awards for improving SAC bomber bases totaled \$32.7 million, and work was 50 percent complete. Construction was nearly finished at the SAC combat operations centers at Barksdale AFB, La., March AFB, Calif., Offutt AFB, Nebr., and Westover AFB, Mass. Cost to date for the four facilities is \$7.9 million. They will greatly improve SAC operational command and control capabilities.

The Air Force awarded contracts approximating \$22 million—a 33 percent increase over fiscal year 1962—to support the Nation's space endeavors. Construction was authorized for fabrication, modification, and additions at launch complexes, tracking and telemetry stations, and development control centers. Most contracts, totaling \$17.5 million, supported the TITAN III launch vehicle, including \$3.9 million for the large solid-fueled motor test complex at Edwards AFB, Calif., and \$13.6 million for two new launch pads and modification of existing launch facilities at Cape Canaveral, Fla. An additional \$10.8 million construction contract generally supported both the missile and space programs. Work on radar and instrument stations along the Atlantic Missile Range accounted for another \$1.4 million.

Air Force construction in support of air defense systems was essentially complete by June 30 at the BMEWS sites at Thule, Greenland, and Clear, Alaska, which were in operation. Money remaining from the original BMEWS authorization will be used to build a tracking system costing \$2.6 million at the Alaska site. The basic construction of BMEWS Site III, at Fylingdales, England, was 97 percent accomplished by the end of June 1963, and installation of technical equipment was proceeding rapidly. The Air Force estimated that construction cost for the entire BMEWS project would be \$169 million—virtually unchanged from the figure predicted in June 1962.

In January 1963 the Chief of Staff ordered the two remaining Texas Towers deactivated and removed. The Air Force completed dismantling and removing all technical equipment on June 28. Meanwhile, on June 5, it let a contract for demolition of the towers themselves by October 1964, at a cost of approximately \$1.8 million.

The Air Force revised the radar improvement program to conform to the Back-Up Interceptor Control (BUIC) plan, and the 59 search radar towers and 56 height-finder radar towers were completed. The support facilities and utilities were nearly complete. Of the \$86 million authorized for this program, approximately \$84 million was under contract with about \$70 million's worth of construction in place. The ground control intercept program was also revised to conform to the BUIC plan. This program now provides for construction of fallout shelters and radiation shielding at 55 Aircraft Control and Warning

(AC&W) stations. About 50 percent of the work was completed and the balance was rapidly nearing completion.

Plans to improve Air Force communications made substantial progress. The North American troposcatter project—providing a link between BMEWS Site I at Clear, Alaska, and the DEW line—was approved. Construction began, with an occupancy date set for December 1963. Procurement also began on high-power UHF amplifiers for DEW line and oversea stations. During June 1963 the Air Force awarded construction contracts totaling \$2.9 million for work at four Spanish communication sites.

Excavation at the NORAD Combat Operations Center at Cheyenne Mountain, Colorado Spring, Colo., was completed on schedule in December 1962. Special concrete reinforcement, necessary because of intersecting rock faults, was scheduled for completion by December 1963. Construction of the internal facilities will be accomplished in two phases, with the completion date for both set at August 1, 1964. Design of structures for the first phase—involving all internal construction except the operations and technical areas—was completed in December 1962. The Air Force awarded a \$7 million construction contract in February 1963. Design of the operations and technical areas was scheduled for completion in September 1963 and the award of the construction contract for November 1963.

Minor construction changes were made to the Air Force Academy chapel to correct a leaking roof. Modifications will be completed in July 1963 and the building dedicated in September. Total construction cost of the academy was \$140.9 million.

During the year the Air Force disposed of almost 1,232,000 acres of land with improvements, having an estimated value of \$105.7 million. At the same time, it acquired an interest (fee, lease, easement, permit, or public domain) in about 80,000 acres of land with improvements, valued at \$2.6 million.

On June 30, 1963, the Air Force was using 233 major installations. These fell into six major types:

Type	United States	Overseas	Total
Operational.....	79	60	139
Operational support:			
Flying.....	5	7	12
Nonflying.....	12	4	16
Training.....	38	0	38
Research and Test.....	9	0	9
Logistic.....	10	0	10
Non-USAF (foreign).....	0	9	9
Total.....	153	80	233

Family Housing

For many years the Air Force has stressed adequate housing as an important factor in retaining qualified military personnel, and it has given high priority to meeting family housing needs. The Capehart-Rains (Title VIII) program, which expired in October 1962, provided the greatest number of housing units. During the fiscal year, 3,514 units were accepted, bringing the total to 59,858. In June 1963 there were 576 under construction which, when completed by December, would close out the program with a total of 60,434 units, costing in excess of \$1 billion. Under the Wherry rehabilitation and improvement program, 34,101 units had been improved, and one project of 500 units was still in process. The total program cost approximately \$103.5 million.

Construction proceeded on 708 units of appropriated-fund housing approved during fiscal year 1962. Completion of these units was scheduled for July 1963 at a cost of \$11.5 million. Also, the Air Force completed construction of 65 bachelor officer quarters—four-bedroom, two-bath units—at a cost of \$1.6 million. Bids were received for six additional units, and construction was scheduled to begin in July 1963. Contracts in excess of \$30 million were awarded and work began during the last half of fiscal year 1963 for 1,844 conventional-type family housing units at 10 bases in the United States.

The pilot project to supply 135 "movable" houses at five isolated AC&W stations proved successful. Completed in March 1962, the houses are conventional in appearance but can be separated into segments and transported on a flat-bed trailer or railroad car. During fiscal year 1963 the Air Force received bids for 1,012 movable-type houses to be located at 14 Air Force bases and stations in 10 different states. Contracts were to be let in July 1963, with the total cost estimated at \$15.9 million.

The Air Force family housing units picture as of June 30, 1963, is shown by each type of funding:

Program ¹	Units existing
Appropriated Funds.....	34, 128
Title VIII (Capehart-Rains).....	59, 858
Wherry.....	35, 593
Rental guaranty.....	2, 570
Surplus Commodity.....	6, 370
Leased.....	702
Movable.....	135
Total.....	139, 356

¹ Excluding 7,626 inadequate units and 2,280 trailers.

Base Maintenance

The Air Force added new facilities valued at approximately \$0.9 billion to its real estate inventory. Over the past decade the value of USAF real property facilities has grown from \$3.8 billion to \$14.9 billion. Actual replacement value is approximately \$26 billion. The cost of operating and maintaining these facilities more than doubled—\$402 million to \$850 million. During this same period, however, the Air Force operated and maintained this expanded physical plant with fewer personnel by emphasizing improved management practices. During fiscal year 1963 all commands and bases were directed to standardize civil engineer organizations and operating policies and procedures. Also, the Air Force devised and instituted modern data-processing methods for base civil engineer activities. In addition, a program was developed to validate all outstanding operation and maintenance projects proposed by major commands. Questionable projects were either rejected or revised. The Air Force contracted for approximately \$69.3 million in maintenance work and \$79.6 million for repairs and improvements during the year.

There were 2,345 fire incidents reported during the year, a drop of 38 percent from the number of fire calls responded to last year; 2,014 of these incidents were structural in nature (buildings, material, equipment, etc.) and 331 involved aircraft. Structural losses amounting to \$17.2 million more than doubled losses of \$7 million last year. However, one fire at Walker AFB, N. Mex., that destroyed an ATLAS missile and its support equipment in a silo accounted for \$8 million. Aircraft losses totaled \$162.7 million due to the impact of crash landings and \$15.3 million due to fire. Structural fires also caused 20 fatalities.

VII. Research and Development

The Congress appropriated \$3.6 billion for Air Force research, development, test, and evaluation (RDT&E) for fiscal year 1963, an increase of about 50 percent over the previous year. Transfers from the Department of Defense emergency fund and elsewhere increased the total to nearly \$3.7 billion. Of that amount, however, the Department of Defense placed \$214.8 million in reserve for fiscal year 1964. Approximately one-third of the RDT&E budget was for space-oriented projects.

The growing costs reflected established projects and new study and development programs, including: The TITAN III booster, planned as a standard launch vehicle to carry out a wide range of manned and unmanned space missions; a defense communication satellite system, undergoing project definition; large solid-propellant rocket motors (156- to 260-inch diameter); and an aerospace plane.

The TITAN III and the large solid-propellant rocket programs were undertaken in support of DOD and NASA needs. In this connection, DOD and NASA agreed in January 1963 to create a program planning board for NASA's two-man orbital space vehicle program, GEMINI. Under this agreement, the Air Force would participate in the experimental and developmental work.

At the same time, DOD and NASA also signed an agreement setting forth management responsibilities for future operations at Cape Canaveral. The Air Force will continue as single manager of the Atlantic Missile Range (AMR), extending from the Cape to the Indian Ocean, with the Air Force Missile Test Center administering the existing 15,000-acre Cape Canaveral launch area. However, NASA will operate the nearby 87,000-acre Merritt Island site being developed for very large launch vehicles. The Air Force will have responsibility in both areas for certain fundamental range functions, such as scheduling of launches, flight safety, range search, and air traffic coordination.

To strengthen its research capability, in July 1962 the Air Force established the Research and Technology (R&T) Division at Bolling AFB, D.C., as part of the Air Force Systems Command. AFSC took steps to consolidate within the near future more than 30 laboratories into 7 major in-house research units. The first of these, the Air Force Rocket Propulsion Laboratory, Edwards AFB, Calif., was

transferred to the R&T Division from the Space Systems Division on December 1, 1962. The Directorate of Materials and Processes, Aeronautical Systems Division, Wright-Patterson AFB, Ohio, was redesignated the Air Force Materials Laboratory on April 1, 1963, and subsequently transferred to the new division. Five other major in-house laboratories were scheduled to become part of the R&T Division.

The Air Force activated the Frank J. Seiler Laboratory specializing in basic research at the Air Force Academy to honor the late Colonel Seiler who devoted a major part of his Air Force career to military research. The new laboratory, a part of the Office of Aerospace Research, will conduct basic research in chemistry and aerospace mechanics and provide advanced scientific training.

Weapon Development

Strategic Systems

The Air Force continued its development program for three XB-70 aircraft and a prototype bombing-navigation system. Funding for the year was \$206.8 million, with the cost of the entire program estimated at \$1.5 billion. An Air Force recommendation in September 1962 to expand the XB-70 program to a full weapon system development was rejected. Although several major development milestones were reached, serious fabrication problems late in 1962 caused the scheduled first flight of XB-70 No. 1 to slip from December 1962 to about November 1963.

While the XB-70 was the only manned bomber-type aircraft under development, on October 30, 1962, the Secretary of Defense requested the Air Force to "consider an alternative bombing system" as a follow-on to the B-52 that might serve as an airborne missile launching platform for the period beyond 1970.

On December 5, 1962, the experimental flight test program of America's first ICBM came to a close at Cape Canaveral when an ATLAS F sped 5,000 miles down the Atlantic range. The missile was the 105th launched from AMR and came 5½ years after the first launch on June 11, 1957. The ATLAS F carried an instrument-filled pod intended to measure the characteristics of exhaust radiation. ATLAS operational test launches continued from Vandenberg AFB, Calif.

On February 6, 1963, the first all-Air Force launch of a TITAN II flew 6,500 miles downrange from Cape Canaveral, carrying the heaviest military payload ever fired that distance by the United States. Other TITAN II test flights followed on March 21 and April 19, 1963.

On March 27, 1963, a MINUTEMAN ICBM flew 4,000 miles downrange, ending a special series of four purely R&D tests of missiles con-

taining components of both MINUTEMAN configurations (Wing I and Wing II). The Air Force continued development of a greatly improved MINUTEMAN, designated a MINUTEMAN II, obtaining notable success in refining the system design, in upgrading second-stage performance, and in perfecting many of the subsystems.

The Air Force supported a number of conceptual ICBM studies by 17 contractors that might lead to new ideas on guidance, command and control, and other subsystems.

To improve the effectiveness of its ballistic missiles, the Air Force explored new technology and techniques of reentry and penetration. After new design vehicles were first tested at the White Sands Missile Range, N. Mex., an ATLAS F on March 1, 1963, successfully carried 5,000 miles downrange the first full-scale model of an Advanced Ballistic Reentry System. The second ABRES experimental nose cone was also successfully fired down the AMR on April 26, 1963. The program called for 20 such test flights. In June the Secretary of Defense designated the ABRES work a national program in the area of reentry research in order to provide closer integration of the USAF reentry and penetration effort with activities of other interested agencies.

On December 31, 1962, the Air Force closed out all production on the SKYBOLT, an advanced ballistic air-to-surface missile. Some R&D work continued until February 2, 1963, to allow the contractor to complete a cataloging of the technology learned during the development program.

The development of the C-141 heavy cargo aircraft continued without major problems. The Starlifter will carry a 45-ton payload non-stop overseas at a speed of more than 500 miles per hour. When used as a troop carrier, the C-141 will transport 154 regular troops or 127 fully equipped parachute troops. The first aircraft began to take final shape in January 1963 as the fuselage sections were joined. In March the contractor qualified the turbofan engine for the C-141, and roll-out of the first aircraft was scheduled for August 1963.

Defense Systems

The Air Force worked on an advanced armament system for interceptor aircraft to include development and testing of the ASG-18 fire-control subsystem and the AIM-47A FALCON missile. An OSD-directed study group explored application of the system to various aircraft in the continental air defense system and the Air Force was authorized to extend the test program beyond the planned completion date of June 1963, at no additional cost. This would keep the development team intact until decisions were made on using the system.

In another area of air defense—early warning—the Air Force obtained some promising results. An experimental early warning satellite demonstrated a potential for detecting ballistic missile launchings. This capability might be of importance not only for detecting attack but also in policing arms agreements.

Tactical Systems

In November 1962, DOD awarded a development contract for the F-111A (TFX), which is to be used by the Air Force and Navy. Under the contract terms, 22 test aircraft will be built and the first delivered within 30 months. The F-111A will initially complement and eventually replace the F-105 and the F-4C. At the end of June 1963 the program was on schedule, and the first flight was tentatively set for February 1965. The reconnaissance version (RF-111A) will have a day/night, all-weather capability.

Development of the F-5A/B tactical fighter aircraft was authorized during the year, and development schedules were oriented toward a first flight in October 1963. The aircraft's seven external stores stations will carry a maximum of 6,200 pounds of bombs. In February 1963 the Air Force took steps to arm the plane with two 20-mm. cannons.

In December 1962 the program definition study (Phase I) for developing a mobile midrange ballistic missile got under way. Although the MMRBM is designed for use from oversea land areas, the Navy is participating in this Air Force program to insure concurrent consideration of possible seaborne application. By June 1963 Phase I was completed and a proposed system package plan was submitted to OSD defining the technical features of the MMRBM system, the over-all development schedule, and alternative operational concepts.

Air Force efforts to improve its store of nonnuclear tactical weapons led to the hardware testing of several types of conventional munitions. Studies were also undertaken to improve tactical fighter operational effectiveness in nonnuclear engagements.

In August 1962, the Air Force terminated development of the air-to-surface ATM-12A BULLPUP, an inexpensive training version of the AGM-12B, because of its inability to meet service training requirements. In April 1963 the Air Force listed an all-weather tactical missile as an advanced development objective.

Space Systems

In August 1962 the Secretary of Defense announced plans to proceed with development of the TITAN III space launch system which is expected to cost between \$500 million and \$1 billion. TITAN III will generate more than 2 million pounds of thrust and is designed to boost into orbit a variety of payloads ranging from 5,000 to 25,000 pounds.

In December 1962 a THOR booster was employed for the hundredth time in launching a space vehicle. In 93 of these 100 launches the THOR performed successfully. In addition to the space launches, THOR has been used on 82 other occasions in support of scientific and military programs.

On March 18, 1963, an improved THOR-AGENA booster combination was successfully fired from Vandenberg AFB, Calif., boosting a satellite into orbit. Thrust was increased from 170,000 pounds to about 330,000 pounds by adding three solid-propellant rocket motors to the liquid-fueled THOR. Using thrust-augmented and other boosters, the Air Force launched many satellites into orbit in order to evaluate component performance and accumulate data on the space environment.

DOD and NASA recently established a joint program to develop large solid-propellant rocket motors to meet expected space requirements of the future. The approved program, managed by the Air Force, calls for the development of a 156-inch segmented motor with 1 million pounds of thrust and a supporting effort (including demonstration static firings) on a 260-inch solid-propellant motor with about 3 million pounds of thrust. The basic objective is to keep open the possibility of expedited development should future requirements arise.

On September 14, 1962, the Air Force began studies to standardize the ATLAS space booster at a cost of \$20 million, with NASA providing half the funds. Earlier, the Air Force successfully standardized the second-stage AGENA D space vehicle with almost immediate operational and financial benefits.

In May 1963 the Air Force selected two contractors to conduct a Phase I program definition study of a medium altitude, random-orbit communication satellite as part of a joint effort with the Army under DCA management, to obtain reliable military communications by placing a number of relatively simple communication satellites in polar orbits. The Air Force is responsible for developing the spacecraft, integrating it with currently available "off-the-shelf" boosters, and conducting launch, tracking, and command and control functions. The Army is developing the ground environment portion of the system.

The Air Force awarded a contract in April 1963 for the design, fabrication, and test of structural components of a manned space-station escape paraglider. Designated FIRST (Fabrication of Inflatable Reentry Structures for Test), the project concentrated on an investigation of design, manufacturing, and test problems rather than development of a complete paraglider and its crew or equipment compartments. The paraglider also showed promise as a means for recovering boosters.

The Air Force demonstrated the technical feasibility of an astronaut maneuvering unit (AMU), formerly called the self-maneuvering unit (SMU). The AMU is a portable strap-on backpack that would

enable an astronaut to leave an orbiting space vehicle, move to another, and then return. A full-scale prototype of the AMU was tested for approximately 50 minutes in specially equipped "zero G" C-135 aircraft. Because of its great potential, the AMU was subsequently accepted as an experiment in the GEMINI program.

In December 1962, the Air Force terminated plans for immediate development of an interceptor satellite capable of finding and inspecting a potentially hostile spacecraft. Partial termination of Project 621A included elimination of the flight demonstration program previously planned for fiscal year 1962 and redirection of funds to develop sensor components for more advanced space inspectors that will further Air Force research participation in joint programs that will require rendezvous capabilities.

Three study contracts for advanced research on an aerospace plane were awarded June 21, 1963. As originally conceived, the plane would be a single-stage-to-orbit-and-return vehicle operating from conventional runways. However, on the advice of the USAF Scientific Advisory Board and OSD, the program was reoriented during the past year to a two-stage approach. Both stages would be fully recoverable, reusable, and manned. To support this concept, advanced development work continued on hypersonic propulsion, aerodynamics, and structures.

Supporting Developments

Communications

Installation continued for SAC's command and control system (465L), an integrated, high-speed, data-transmission, processing, and presentation system. The first of three data-processing centrals was installed at SAC headquarters, and switching centrals and local input/output devices were placed at three of SAC's subcommand headquarters. Fifty-nine of 64 bases also received remote communication centrals.

To improve the postattack command and control system (481L), the Air Force is investigating the feasibility of an automated airborne command and control center by means of ground simulation.

The Nuclear Detonation and Reporting System (NUDETS, 477L) entered Phase I testing with the installation of optical, seismic, and electromagnetic sensors at four sites, together with a data-processing center. This first segment of a possible national system, covering the Baltimore-Washington-Norfolk area will report detailed information on nuclear detonations to command and control centers.

Between September 3 and October 15, 1962, the Air Force conducted tests of a Broadcast Radio Emergency Communication (BRECOM) system. BRECOM involved the use of clear-channel commercial broadcast and relay stations to transmit teletype messages

simultaneously with scheduled broadcasts. The purpose was to establish a secure, instantly available, and highly reliable teletype communication system between Offutt AFB, Nebr., and the Alternate Joint Communications Center. In November 1962 a followup test of the system evaluated operations with all relay stations in an unattended status.

After several earlier failures, the Air Force in May 1963 successfully launched into orbit a Project WEST FORD package containing 400 million tiny copper filaments (dipoles) that dispersed to form a belt around the earth at an altitude of 2,000 miles. The dipoles started to scatter and form the desired belt at the rate of 1,000 miles per day. Using the dipoles as passive reflectors, experiments were conducted that included coast-to-coast radio tests and transmission of transcontinental teletype messages. WEST FORD held promise of a global communication system virtually invulnerable to destruction or jamming.

Instrumentation

In May and June 1963, the Air Force formally dedicated two advanced-range instrumentation ships (ARIS), the *General H. H. Arnold* and the *General Hoyt S. Vandenberg*, at Port Canaveral, Fla. Each ship carried radars more powerful than any previously employed on the Atlantic Missile Range. They are able to collect between 10 and 20 million bits of information in 2 or 3 minutes from missiles in flight. The ships also have advanced instruments for short-range and long-range communications, data-handling equipment, a telemetry subsystem, a timing subsystem accurate to one-thousandth of a second, and optical-correcting equipment.

In February 1963, AFSC began purchasing equipment to extend range instrumentation from Ely, Nev., to Wendover, Utah, for use with X-15 and XB-70 flight-testing.

Advanced Technology

Research Vehicles

In the spring of 1963 the Air Force began at Edwards AFB, Calif., a flight-demonstration program with the X-21A experimental aircraft, a modified WB-66. In 18 flights the X-21A successfully demonstrated that its laminar-flow control (LFC) wings produced marked drag reductions. Theoretically, LFC wings can increase the range and endurance of a large aircraft 50 percent by raising its aerodynamic efficiency. Sustained flight with such wings would have revolutionary impact on both military and civilian aircraft.

The X-15 research aircraft continued to mark up important new records. On July 17, 1962, the X-15 for the first time flew above

its original design altitude of 50 miles. The needle-nosed aircraft climbed to a record altitude of 58.8 miles (314,750 feet) and earned astronaut wings for its Air Force pilot, Maj. Robert M. White. In later flights, NASA test pilot Joe Walker and USAF Maj. Robert Rushworth also flew the aircraft above an altitude of 50 miles.

In April 1963 a contract was signed to modify to a Mach 8 speed capability the X-15 damaged on November 9, 1962, in an emergency landing at Mud Lake, Nev. The major modifications include adding a large external fuel tank, applying a heat-protective coating to leading edges, and installing improved windshields.

Two tri-Service development projects were placed under USAF management. The XC-142 tilt-wing transport will be used to evaluate the operational suitability of its vertical or short takeoff and landing (V/STOL) capabilities. The X-19, an experimental twin-engine, high-wing airplane with four tilting propellers mounted at the tips of the wings, will evaluate a vertical takeoff and landing system and its possible application to military purposes. In June 1963 the X-19 aircraft was shop-completed, and official rollout was scheduled for the following month.

Propulsion and Power

The search for new and improved propulsion systems led the Air Force to award four contracts for the design or development of lightweight turbine engines. Two engines had design objectives of 16 to 1 and 20 to 1 thrust-to-weight ratios, respectively. The other two involved the study of lift-cruise engines in VTOL missions.

There were several promising advances in the field of electric propulsion. Investigations of electrothermal engines aim at higher power levels and higher specific impulses. Theoretical and experimental work on contact ion engines was followed by demonstrations producing increased output. Feasibility studies were under way on two types of electromagnetic engines—a traveling accelerator and a crossed-field plasma accelerator. In one exceptional experiment, scientists successfully operated a scaled-up cesium contact ion engine for 194 hours.

In December 1962 the Air Force began a flight test program for electric propulsion engines, using a BLUE SCOUT rocket as the launch vehicle. A power failure in the test package 5 minutes after the launching ended the experiment. Scientists undertook extensive testing and analysis to determine the cause and devise corrections.

Air Force study and development efforts on a wide range of rocket components sought improved thrust chambers, injectors, nozzles, and cases. An in-house program investigated injector designs and cooling techniques using the propellant combination of liquid oxygen and

liquid hydrogen. Initial testing conclusively demonstrated the feasibility of a radical injector that had only five orifices and could produce 50,000 pounds of thrust. For this amount of thrust, the usual injector required as many as 500 orifices.

In nuclear rocket propulsion, the Air Force began to study the use of a fast-spectrum, metallic reactor in a rocket engine with a multiple-restart capability to permit military vehicles to maneuver in space.

In December 1962, DOD and AEC announced an agreement to integrate the Air Force and AEC development programs on nuclear power units for the in-flight operation of spacecraft subsystems. SNAP-50/SPUR is intended to develop a unit capable of unattended operation for at least 10,000 hours with a weight of 10 to 20 pounds per kilowatt unshielded. Reports on the design of a 300-kilowatt unit were issued, and by the end of the year promising choices of materials and design concepts for reactor components had been identified.

Avionics

In May 1963, OSD approved an Air Force plan to develop a stellar-inertial navigation system for use in advanced aircraft. Seven contractors submitted development proposals that were being evaluated at the close of the year. Contracts were let for development of a new terrain-avoidance radar, intended to facilitate aircraft operations under all weather conditions and at minimum altitudes and supersonic speeds. The development required an inertial reference system and position-identifying equipment.

Materials

Air Force scientists and contractors chalked up a major gain in the search for new structural materials. New processing techniques produced very thin-gauge refractory foil for lightweight structures. An evaluation of various composite lightweight insulation panels disclosed some that would minimize boil-off of cryogenic fuels—even when aircraft skin temperatures reached 2500° F.

Research

Space Experiments

On October 26, 1962, the Air Force launched a satellite containing a special package of instruments into orbit to measure the increased radiation within the Van Allen belt, stemming from previous high altitude nuclear tests. Air Force scientists designed and constructed the payload, using on-hand space radiation instruments. These included spectrometers for gamma, electron, proton, and alpha radiation particles; omnidirectional proton and electron counters; electron-density impedance probes; a tissue-depth dose ionization chamber; and magnetometers and solar sensors for aspect reference. This USAF satel-

lite began the most completely instrumented radiation flight ever made by the United States. On the basis of information obtained through January 18, 1963, date for the last readout, Air Force scientists estimated that radiation from the high altitude tests would last up to 10 years.

In November 1962 the Air Force conducted a related experiment, launching into orbit a 1.47-pound tetrahedral research satellite (TRS), to help map space radiation. The Air Force also orbited a "thermonuclear converter" aboard another satellite, designed to convert sunlight into electricity with the efficiency of solar cells but with more resistance to space radiation. Signals from the converter were received for 4 days, and the experiment was considered a success.

On October 31, 1962, another significant space experiment occurred when the tri-Service ANNA IB geodetic satellite successfully orbited. The 350-pound spherical satellite contained four high intensity lights that flashed on and off as the vehicle orbited the globe. By comparing simultaneous observations of the lights from various points on earth, scientists hoped to measure the earth's size, shape, and surface features with an accuracy never before possible. On December 20, 1962, responsibility for ANNA IB passed from the Department of Defense to the National Aeronautics and Space Administration.

Upper Atmospheric Studies

Between October 15 and December 15, 1962, Project FIREFLY III released into the upper atmosphere 65 chemicals in a research program to learn more about the ionosphere. Twenty-seven of 33 rockets were successfully launched over the Eglin Gulf Test Range, ejecting the chemicals. This research investigated propagation effects, wind characteristics, temperatures at extreme altitudes, and removal of electrons by chemical means from the E and F regions of the ionosphere. Information obtained from FIREFLY should be useful to future space pilots.

The Air Force obtained important data on the ionosphere and the dynamics of its formation and dissipation in another experiment that involved the flight of a positive ion-detector aboard a THOR rocket. At all altitudes between 150 and 500 kilometers, the experimental data matched theoretical data within an error of only 2 percent.

In January 1963 the Air Force began a concentrated, 1-year program of observations of upper atmospheric ozone requiring about 700 balloon launchings from 11 stations between the Canal Zone and Greenland. Sensitive ozone meters carried aboard the balloons obtained data on the nature of that gaseous, allotropic form of oxygen in the atmosphere. For other upper atmospheric research, the Air Force assumed operating responsibility of the rocket research facility

at Fort Churchill, Canada, from the U.S. Army on July 1, 1962, and reopened it formally on November 1, 1962. The renamed Churchill Research Range will annually support launchings of about 90 atmospheric research experiments carried by such rockets as the NIKE-CAJUN, ASTROBEE, JAVELIN, and BLACK BRANT. In addition, some 150 smaller meteorological rockets will be fired from the range to obtain data on winds and temperatures at altitudes up to 50 miles.

The Air Force placed into operation a new weather radar data processor, which because of its speed and special capability may revolutionize methods of short-range storm observation and forecasting. The system demonstrated its effectiveness in tracking a tornado storm in eastern Massachusetts. The data processor was tied directly to a conventional weather radar, which scanned the skies and provided data on the intensity of storm echoes at various altitudes within certain geographical areas. The processor printed numerical maps every few minutes, enabling meteorologists to detect changes in the storm situation rapidly and accurately.

On December 14, 1962, a Project STARGAZER balloon completed an 18½-hour flight to an altitude above 80,000 feet, carrying a gondola with a 12-inch telescope and two observers, Capt. Joseph A. Kittinger, Jr., USAF, and William C. White, an astronomer from the U.S. Naval Test Station. Using the telescope mounted on top of the gondola, the observers obtained a clearer view of the stars and planets than any astronomers in history. At the time, they were riding above 90 percent of the earth's atmosphere. After several other attempts to launch STARGAZER balloons failed in March-April 1963, the project was canceled.

Aerospace Medical Research

One well-known research program came to an end in April 1963 when Ham, the space chimpanzee, was transferred to the custody of the National Zoological Park, Washington, D.C. The Air Force retained the privilege of conducting physical examinations of Ham at 3- and 5-year intervals.

The Aerospace Medical Division continued its investigations for protecting men in space from ionizing radiation. Earlier experiments succeeded in keeping radio-protected animals alive longer than usual after receiving lethal doses of X-irradiation by injecting certain chemicals into them before irradiation. Encouraging results were also obtained with some methods of postexposure treatment. Eight monkeys received 900 roentgens of X-rays after having been injected with radio-protective chemicals. Based on experience, all should have died within 15 days, despite the injections. However, as a result of

the treatment after the exposure, all lived considerably longer than 15 days and one survived until the 618th day.

USAF aerospace medical research laboratories were engaged in the human factor aspects of a number of other man-in-space problems—rendezvous and docking in space, landing on nonterrestrial bodies, and repairing space ships from the outside; human performance during unusual work-rest cycles; effects of prolonged confinement; effects of prolonged breathing of pure oxygen; creation of a satisfactory artificial atmosphere; recovery of potable water from urine and wash water; and storage and use of gaseous oxygen at high pressure. Laboratories continued studies on the physiological effects of cold and tests of equipment, supplies, and techniques under actual arctic field conditions.

VIII. Procurement and Production of Materiel

Industrial Resources

The 1963 budget for new production facilities was \$52.6 million—\$32.5 million less than last year. This decrease, and an accompanying shift of emphasis in the apportionment of the funds, resulted from near-completion of missile production facilities and the emphasis being placed on industry to provide facilities without Government support.

FUNDS FOR PRODUCTION FACILITIES

(In Millions of Dollars)

Fiscal year	Missiles	Aircraft	Other	Total
1962 -----	45.9 (58.6%)	32.0 (37.6%)	3.2 (3.8%)	81.1 (100.0%)
1963 -----	13.3 (25.3%)	35.0 (66.5%)	4.3 (8.2%)	52.6 (100.0%)

The number of Government-owned plants continued to decrease, with those operating below marginal level scheduled for disposal. Maximum use was made of private industrial facilities, although production continued at those Department of Defense plants where it was economically advantageous to the Government. By June 30, 1963, the Air Force had reduced its inventory of major plants to 51. Of these, 43 were actively engaged in the production of materiel and 8 were being processed for disposal. There were no new plants under construction.

The Air Force continued to reduce its production equipment inventory. During fiscal year 1963 the number of metal-working tools in the USAF inventory declined from 109,872 to 107,829 (at a total acquisition cost of \$1.2 billion). The number of tools in actual use declined from 95,330 to 94,009. A total of 11,200 were idle and 2,620 were awaiting disposition.

The study of new production processes continued at an annual cost of \$20 million. Projects under study included manufacturing techniques of producing 260-inch-diameter rocket motor cases, the manufacture of high temperature aerospace structures, and the de-

velopment of new methods of machining, forming, and joining super-alloy and refractory metals.

Procurement Policy

Procurement through formal advertising was minimal and is not expected to increase significantly, because the complexity of most Air Force systems does not fit this method of purchase. Although the bulk of Air Force procurement was by negotiated contract, the keen competition produced by price and design solicitations equaled that generated by formal advertising. Besides, there was a high degree of competitive bidding at the subcontractual level, where, for example, 50 percent of the work on the \$1 billion C-141 program is being done.

Over the past several years, there has been a successful effort to limit the amount of sole-source procurement. In fiscal year 1961, 35 percent (\$3.8 billion) of Air Force procurement was on a sole-source basis; in fiscal year 1962 this was reduced to 19.3 percent (\$2.2 billion), and still further in fiscal year 1963, to 16.3 percent (\$1.9 billion).

Economy was also achieved through judicious use of the several forms of contracting. The number of cost-plus-fixed-fee (CPFF) contracts, which provide little motivation to reduce contractor costs, was decreased. In the previous year, the Air Force obligated 46.8 percent (\$5 billion) of its total procurement outlay on CPFF contracts. During fiscal year 1963 this proportion was reduced to 27.8 percent, and approximately \$2 billion more was placed on contracts that encourage economy. The Air Force made far greater use of performance incentive contracts—\$4.3 billion being obligated on them in fiscal year 1963 as compared with \$2.3 billion the year before.

A letter contract has been frequently used for preliminary contractual coverage as a useful and necessary means of meeting emergencies. Letter contracts are subject to abuse if not replaced by a formal contractual agreement on a timely basis, since the contractor can expend large sums of money with little motivation to control costs. In fiscal year 1962, 32 percent of the procurement budget had been initially placed on letter contracts. The Air Force recognized the need for more stringent controls and established quotas on command letter contracts, especially with large dollar-volume contractors. By the end of the fiscal year 1963, only 9 percent of the total procurement budget was obligated on letter contracts.

Air Force cooperation with the Missile Sites Labor Commission resulted in improved labor relations and fewer work stoppages. The time lost by the work force because of labor disputes declined by 18 percent from the previous year. More than 160 cases involving labor law provisions were successfully closed out.

In compliance with Executive Order 10925, Equal Employment Opportunity, procurement regulations were revised to insure nondiscrimination in employment by USAF contractors. The Air Force investigated 221 complaints against contractors and conducted compliance reviews at 191 contractor locations.

Total Air Force procurement with industry amounted to \$11.2 billion, of which small business awards totaled \$978 million. This was a decrease of \$48 million from the previous year and represented a drop in direct Air Force small business procurement from 9.6 percent in 1962 to 8.7 in 1963. The decline resulted partially from a \$473 million increase in the procurement of aircraft, aircraft engines, and guided missiles—areas in which direct small business participation is minute—and does not reflect substantial subcontracting to small business by prime contractors.

Aircraft and Missile Production

Air Force funds for new procurement during fiscal year 1963 totaled \$7,474.8 million—51.4 percent for new aircraft and 13.3 percent for modifications, industrial facilities, components, and other items. The Air Force recouped \$450.3 million as a result of program changes. The following table compares the funds available in direct Air Force programs for procurement in fiscal years 1961, 1962, and 1963:

AIRCRAFT AND MISSILE PROCUREMENT

(In Millions of Dollars)

Fiscal year	Aircraft and support equipment	Missiles and support equipment	Other ¹	Total
1961-----	3,920.5 (49.4%)	3,083.1 (38.9%)	927.8 (11.7%)	7,931.4 (100.0%)
1962-----	3,695.1 (47.1%)	2,973.4 (37.9%)	1,178.1 (15.1%)	7,846.6 (100.0%)
1963-----	3,939.1 (51.4%)	2,638.7 (35.3%)	997.0 (13.3%)	7,474.8 (100.0%)

¹ Modification, facilities, components, etc.

No major problems were encountered in the Air Force missile production program. The contractor completed delivery of the first wing of 150 MINUTEMEN by July 3, 1963. The final four squadrons of the six-squadron TITAN I force were turned over to SAC in September 1962—just 1 month behind the schedule set in 1958. Production of 722 HOUND DOG air-to-surface missiles was completed in March 1963. The Navy-developed BULLPUP air-to-surface missile was

delivered to Air Force units in greatly increased quantities—2,000 in May alone.

Aircraft deliveries slightly exceeded the number originally planned for the year. B-52 production was completed on October 26, 1962—744 B-52's having been produced since the beginning of the program. Termination of the B-58 program in November 1962 with delivery of the 116th aircraft ended strategic bomber production in the United States for the first time since before World War II.

The initial two-place F-105F flew for the first time in June 1963. The F-4C made its initial flight in May 1963—2 months ahead of schedule. Procurement of the F-5A/B tactical fighter—intended for the Military Assistance Program—totaled 85 aircraft: 71 single-place F-5A's and 14 two-place F-5B's. First deliveries of the grant aid F/TF-104G were made.

C/KC-135's reached peak production during fiscal year 1963, as SAC received 92 KC-135's and MATS, 4 C-135's. Headquarters, USAF, also approved this aircraft for reconnaissance and charting missions, and deliveries for this purpose were scheduled to begin in fiscal year 1964.

Production of the C-130E remained on schedule—46 were acquired by MATS and 34 by TAC. OSD agreed to raise the monthly production rate from 12 to 15 and to increase the fiscal year 1964 procurement from 42 to 114. The Air Force accepted the last of 16 C-140's in June 1963, completing this procurement. A letter contract for procurement of the C-141 strategic transport was signed on March 22, 1963.

The Air Force accepted the first production CH-3B—a twin-turbine, single-rotor helicopter—in October 1962, and the first CH-3C was due to follow in July 1963. The initial program included 6 B's and 22 C's, and follow-on procurement called for 80 additional C's. Delivery of 59 HH-43B helicopters began in August 1962 and remained on schedule. The last of these should be delivered in December 1963, making a total procurement of 175.

In August 1962, when the Secretary of Defense approved an increase in the rate of pilot training, he also authorized the Air Force to procure 202 additional T-37 trainers, with 83 to be delivered in fiscal year 1964 and 119 the following year. In addition, the Air Force was authorized to procure 991 T-38 supersonic basic trainers, with deliveries extending through fiscal year 1967. As of June 30, 1963, the Air Force had accepted 297. T-29 production remained on schedule at the rate of 5 per month, and 123 T-39A's and 6 T-39B's were in the USAF inventory on June 30.

Aircraft engine production declined during fiscal year 1963, 2,751 engines having been manufactured as against 3,548 in the previous

year. The total value of the USAF aircraft engine inventory reached \$6.3 billion.

Communication and electronic equipment for improved command and control, missile and aircraft warning, and nuclear detonation detection systems, were procured at a cost of \$544.2 million. Major cost items were \$50 million for BMEWS Site III electronic equipment and \$35 million for BUIC equipment.

Military Assistance Program

Fiscal year 1963 marked the fourteenth year of Air Force participation in the Military Assistance Program which has transformed the air arms of various MAP-recipient countries into soundly equipped and well-trained air forces. In 1963, F-104G's produced by the European consortium and Japanese-produced F-104J's were introduced into the inventories of their respective air arms, and a considerable degree of self-reliance became evident.

Economic prosperity virtually eliminated grant aid for the major western European countries. Cost-sharing or full local responsibility became the accepted practice. However, the high cost of complex aircraft and missile systems necessitated some continued assistance to some smaller European nations, while grant aid requirements increased in certain areas of Asia and Africa facing intensified guerrilla activity. South Vietnam accounted for a significant portion of this assistance. Chinese aggression against India led to military assistance to that nation. A number of newly independent countries, especially in Africa, became eligible for military assistance through Presidential determinations made under the provisions of the Foreign Assistance Act of 1961.

Over the past 14 years the Air Force expended \$9 billion of the nearly \$9.93 billion authorized, providing \$5 billion (55.1 percent) for Europe; \$1.3 billion (14.4 percent) for the Near East and Africa; \$2 billion (22.7 percent) for Asia, including the Pacific islands; nearly \$0.2 billion (1.9 percent) for Latin America; and \$0.5 billion (5.9 percent) for programs not designated for a particular area. In addition to the above appropriated funds, \$0.7 billion of materiel excess to Air Force requirements was delivered to MAP countries. Over-all deliveries of materiel and services totaled \$9.7 billion. Aircraft accounted for \$5.6 billion, missiles for \$0.6 billion, and other materiel and support for \$2 billion. The remaining \$1.5 billion represented services rendered, including training assistance.

The Air Force delivered under MAP over 14,400 aircraft by June 30, 1963, nearly 10,000 of which were jets. Allied air forces had a total of 260 MAP-equipped squadrons—175 jet and 85 conventional.

Approximately 85 percent of the jet units and 85 percent of the reciprocating-engine squadrons were at least marginally combat-ready. As in the past, most combat-ready units were in the NATO force, but operational readiness ratings were rising in all areas and were especially high in the Far East.

In 14 years the Air Force trained 4,081 foreign pilots in the United States and 7,672 other flying specialists both here and abroad. USAF technical training courses enrolled more than 67,700 foreign nationals. This training was provided to insure proper maintenance and utilization of the equipment delivered under MAP. While the results have been more than satisfactory, the training also provided certain side benefits. A vast reservoir of good-will for the United States was created, and the personal contact of this face-to-face training proved advantageous in the East-West ideological struggle.

IX. Logistic Services

Automatic data-processing methods have enabled the Air Force to achieve significant savings and greater efficiency in the logistic support of weapon systems. Mechanized inventory techniques, rapid communications, and airlift transportation have eliminated the need for oversea supply depots; the Air Force now supports its worldwide operations directly from depots in the United States. Although it is expensive to maintain global direct-wire networks and to air transport high-value supplies, the savings realized from reduced inventories more than compensated for the cost of the new methods.

Modern logistic practices have achieved significant savings. Engine overhaul pipeline time between depot and using bases in the United States was reduced from 135 days in 1951 to 75-95 days in fiscal year 1963, between depot and oversea bases from 210 to 79-96 days. The value of the aircraft spares inventory in relation to the value of the aircraft supported dropped from 75 to 35 percent since 1955. Although the number of line items in the inventory more than doubled since 1951, the manning of the Air Force Logistics Command (AFLC) was reduced by approximately 76,000 during these years.

Supply

In its continuing support of the Defense Supply Agency (DSA), the Air Force began in June 1963 to relocate functions from AFLC's depot in Memphis, Tenn., to provide room there for DSA's newly established Defense Industrial Plant Equipment Center (DIPEC). The center will assume Defense-wide responsibilities for the \$1.2 billion inventory of inactive industrial plant equipment and keep it readily available for use on new contracts. The Air Force contributed 110 personnel to DIPEC.

On June 30, 1963, the Air Force discontinued AFLC's General Supplies Division, which since 1955 had handled centrally procured consumable supplies in common use. The approximately 75,000 items in this category were transferred to DSA or returned to other Air Force central procurement units.

AFLC completed installation of an instantaneous supply requisition system at its nine materiel areas in February 1963, when automatic data-processing equipment was placed at Warner-Robins, Sacramento, and Rome. Formerly designated AFDATACOM (Air Force Data

Communications System), the system was renamed AUTODIN (Automatic Digital Network) and transferred to the Defense Communications Agency. DCA will serve as the over-all system manager with the Air Force acting as the operational management agency.

Under this system, air bases place punched-card requisitions in their transceivers and the information is electrically transmitted to the depot handling the required items. To improve the system and obtain immediate information on the supply status of any item, a standard random-access storage device was still required. In June 1963 the Air Force was evaluating proposals for the manufacture of this equipment.

Headquarters, USAF, approved a program to modernize and standardize a system for supply accounting at 152 designated bases. Previously, processing computers had been installed at 85 bases over the world. In the individual commands, there was considerable variance in the age and capabilities of each unit. Installation of the standardized system was scheduled to begin in the summer of 1964 and be completed in 1966.

Another refinement in supply management made possible a reduction in the number of electronic support bases for ADC radar stations from 13 to 7. These computer-equipped electronic asset control centers exercised centralized control of supply accounting and reporting and also procured local-purchase items. The reorganization eliminated 126,257 line items from on-site supply stocks, at savings of \$3.89 million and 124 manpower spaces.

On September 1, 1962, the Air Force initiated Project MINT (Materiel Identification and New Item Control Techniques) to eliminate from the inventory those stock numbers no longer in use, identify items stocked anywhere in the DOD, and control closely new item inputs. By the end of the fiscal year, MINT had deleted over 350,000 stock numbers from the Air Force supply system. Since the average cost to manage each Air Force line item was about \$100 a year, the reductions meant significant savings.

The Air Force transferred its standardization office from AFLC to Headquarters, USAF, in December 1962 to permit greater control of this activity and closer liaison with the other Services and DSA. Recent standardization actions have eliminated 113,575 items from supply stocks, and numerous specifications and standards have been updated. On an international basis, the United States, Canada, and the United Kingdom now have 186 air standardization agreements, of which 12 were formulated in the past year. There are also more than 165 NATO standardization agreements on air materiel ratified by participating nations.

During fiscal year 1963, the Air Force declared excess to its needs personal property originally costing \$2.4 billion and disposed-of prop-

erty valued at \$2 billion. Because declarations of excess property far exceeded disposals, the excess and surplus property inventory increased from \$745 million to approximately \$1.2 billion. Aircraft made up 40 percent of this inventory. Reclamation of spares and components from excess aircraft amounted to nearly \$100 million, double that of last year. The sale of scrap and waste brought \$8 million; the sale of salvage and usable property \$13.3 million.

The Air Force exceeded by 5 percent its 1963 Defense Cost Reduction Program objective of \$337 million for the use of assets released from supply and equipment inventories and declared excess. Items worth \$353 million were put back into use or released to other agencies.

Maintenance

All aircraft and missiles, with their associated electronic components, were brought under the Air Force's "66-1" maintenance management system during fiscal year 1963. From data submitted by using organizations, the Air Force learned it was overinspecting numerous components of aircraft and other equipment. Some parts inspected every 50 or 100 hours actually needed inspection only every 500 or 1,000 hours. By reducing these examinations, the Air Force could place at the disposal of commanders what, in some cases, actually amounted to a wing or more of aircraft.

Depot maintenance was reserved, generally, for combat and combat support forces. Organizational and field maintenance was to be employed to the fullest capacity before any depot maintenance was authorized. This base self-sufficiency program enabled the Air Force to repair over 80 percent of its reparable breakdowns at base level. Improved field and preventive maintenance reduced the number of J-57 engines overhauled at the depot level by 2,595 and T-56 engines by 793. This drastically reduced downtime and eliminated costly transportation and handling.

The depot maintenance and overhaul budget in fiscal year 1963 was \$736.6 million. Despite a decrease in the number of aircraft supported, the increased requirements for missile maintenance kept the depot workload at about the same level as in past years. More than 100,000 individual aircraft and missile items were maintained. More than 200,000 items of electronics and communications, ranging from simple radios to complex ground navigation and tracking systems, were returned to operational status by the depots. They also maintained such key ground equipment as specialized vehicles, compressors, generators, and the sensitive missile checkout, test, service, and launch equipment.

The Air Force spent \$328.4 million, about 45 percent of the depot maintenance budget, on contractual maintenance. Air Force depots

maintained the weapon systems vital to preserving its capability for instantaneous and successful response to crisis situations. Items that fell outside this category were generally contracted with industry.

Most missile and aircraft modifications, costing \$766.6 million, were beyond in-house capabilities. All but \$36.5 million of this program was contracted with private industry.

The Air Force's success in keeping down maintenance costs as the weapon inventory has become more complex prompted the Secretary of Defense to direct the other Services to adopt Air Force maintenance management practices wherever feasible. During fiscal year 1963 a team of Air Force specialists, at Navy request, helped to install this system for F-4B aircraft squadrons.

Transportation

The Air Force moved men and supplies among domestic bases, depots, and factories and to oversea bases primarily by MATS aircraft, LOGAIR charter aircraft, and regularly scheduled airline flights.

LOGAIR, the domestic charter airlift, had 1963 budget obligations exceeding \$31 million, which included funding to support emergency airlift during the Cuban crisis. The Air Force arranged for DSA to use LOGAIR on a reimbursable basis for fiscal year 1964.

During the Cuban crisis, a Logistics Readiness Center (LRC) was established as an adjunct to the Air Force Command Post to control prepositioning of war materiel. The center was retained after the crisis and charged with keeping current catalogs on the worldwide location of logistic resources. It was scheduled to become completely operational by 1965.

Improved management of transportation and traffic brought about savings through the increased use of economy class air travel, decreased cost of household goods shipments, and more economical use of airlift for cargo movements. The Air Force saved \$11 million, more than \$3 million over the planned goal.

The Air Force experimented with shipping cargo overseas using the "through container service" offered by several steamship companies. In a service test, GSA-supplied items were shipped in commercial containers directly from a GSA warehouse in California to Hawaii. This cut over-all transportation costs by two-thirds from those for similar shipments with government containers (CONEX), primarily because the cost of handling, shipping, and returning empty containers was eliminated. If further study indicates this commercial service is feasible, the Air Force will extend it to other cargo.

Bulk aviation fuel, accounting for about 90 percent of the tonnage shipped into air bases in the United States, cost less to ship during

fiscal year 1963 primarily because commercial pipelines were extended to 43 bases. The pipeline service saved about \$5.4 million last year, and about \$25 million since the program began in 1954. Further savings accrued from the use of company-provided fuel storage facilities, with a capacity of more than 2 million barrels.

X. Management

In February 1963, elements of two principal Air Staff offices were realigned to form the Deputy Chief of Staff for Plans and Operations and the Deputy Chief of Staff for Programs and Requirements. This change placed responsibility for both peacetime and wartime planning and operations under one deputy and strengthened the programming function under another.

At the same time, the Deputy Chief of Staff for Research and Technology was reorganized and renamed the Deputy Chief of Staff for Research and Development. The Deputy Chief of Staff for Systems and Logistics combined its Directorates of Systems Acquisition and Systems Services into one Directorate of Production.

The Directorate of Telecommunications was reorganized during the year and designated the Directorate of Command Control and Communications. It monitors the functional and technical design of the USAF command control system and the integration with the U.S. National Military Command System.

In March 1963, four deliberative and advisory boards—the Systems Review Board, the Force Estimates Board, the Military Construction Board, and the Budget Advisory Board—were consolidated into a single Air Staff Board. The new board reviews and evaluates the enemy threat and makes recommendations on Air Force concepts, objectives, tasks, force structure, research and development, resources limitations, financial plans, and budget estimates. Air Staff Board findings are considered by the Chief of Staff through the Air Force Council and in the Secretary's office through the Designated Systems Management Group (DSMG). At the end of June 1963, 13 high-priority weapon and supporting systems were under DSMG direction: ATLAS, TITAN, MINUTEMAN, Mobile Mid-Range Ballistic Missile (MMRBM), Strategic Air Command and Post Attack Command Control Systems, B-70, F-4C, F-111 (TFX), C-141, X-20 Dyna-Soar, large boosters (TITAN III and large solid-fueled), and Space Systems 162 and 437. Four were dropped from DSMG purview during the year—SKYBOLT, Defense Communications Satellite System, and Space Systems 706 and 461.

Headquarters, USAF, improved internal communications in March 1963 when it established a closed circuit television system for its key conference and panel rooms. The use of video tape reduced considera-

bly the workload of personnel normally required to give many repeat briefings. The tapes are kept current and facilitate briefings for busy officials. Exchange of video tape briefings between Headquarters, USAF, major commands, and other Air Force field offices should reduce transportation and per diem costs for briefing teams.

To reduce personnel management costs, the Air Force transferred certain military personnel functions of the Deputy Chief of Staff for Personnel at Headquarters, USAF, to Randolph AFB, San Antonio, Tex. Modern electronic equipment will be used at the new location to maintain a variety of personnel, training, and other data. The move, affecting about 750 employees, began in the spring of 1963 and will be completed in 1964.

Important savings resulted from the reduction of flying costs for noncombat mission support. Reduction in numbers of pilots and aircraft has been achieved over the past 3 years despite increased flying requirements, beginning last year, for missile site support.

NONCOMBAT FLYING SUPPORT MISSIONS

(FY 1960-63)

Category	FY 1960	FY 1963	Percentage reduction
Aircraft Inventory.....	3, 289	2, 183	34
Pilots (average number).....	24, 495	18, 374	25
Flying Hours.....	1, 898, 629	1, 227, 933	35
M&O.....	\$115, 500, 000	\$87, 300, 000	24

The Secretary of Defense's 5-year cost reduction program, announced in 1962, estimated \$3 billion can be saved in military expenditures annually. This goal was raised to \$4 billion at the end of fiscal year 1963. This program has led to closer scrutiny of all procurement requirements, increased use of excess inventories, elimination of "goldplating" specifications, and more competitive-type procurement and construction contracts. In fiscal year 1963, the Air Force succeeded in lowering repair time for high- and low-cost items, thus permitting a reduction of spares requirements for 400,000 inventory items. This reduction, coupled with other management actions, produced savings of over \$450 million. Again, by substituting a commercial hydraulic device for a special electric one to open and close MINUTEMAN silos, the unit cost per device dropped from \$555,000 to \$80,800. This action alone saved \$1.2 million during the year.

The Air Force no longer required units below the major command level to conduct inspections, and it consolidated all separate special

investigation offices into a single agency. The Air Force also eliminated three regional headquarters in the Communications Service, consolidated the postal services in the European area under a single head, combined certain functions of the Eastern and Western Transport Air Forces of MATS, and consolidated or inactivated a number of Headquarters Command units.

Comptroller

The Air Force continues to be the largest user in the Government of electronic data-processing (EDP) equipment to help manage and control activities. By the end of 1963 there were 328 computer installations, 53 more than a year before. The Air Force officially completed standardizing its accounting and financial activities on June 30, 1963. The Air Force began purchasing small-size EDP systems as an aid in handling military personnel pay and entitlements. For airbase supply functions, there is pending procurement and delivery of a standard base-supply computer "package" for Air Force-wide use. EDP will also be employed to prepare and maintain the 5-year force structure and financial plan now required by the Department of Defense. A fully automatic system for this purpose is expected to be in operation by mid-1964.

The Auditor General established the Office of Assistant Auditor General for Logistic Audits, which handles aircraft and missile provisioning, technical data, spares requirements, and follow-on support.

In support of Department of Defense policy to improve the U.S. international balance of payments by reducing military expenditures abroad, the Air Force effected "gold flow" savings of approximately \$26 million in fiscal year 1963. Important savings were obtained by rotating rather than assigning some military personnel to overseas posts, thereby reducing somewhat the number of dependents residing abroad; by increasing the amount of procurement of supplies, equipment, and services in the United States; and by using to the maximum U.S. contractors and materials in the overseas construction program.

Inspector General Activities

Inspections

Inspector General teams conducted 69 inspections during the year, highlighted by extensive examinations of two major Air Force commands. Inspection of the Air Force Systems Command and the Air Defense Command identified areas where management and economy could be improved. Equally important were the industrial management assistance surveys that reduced costs and provided more effective management of Air Force contracts with industry.

Several weapon systems were reviewed, notably the ATLAS E, the ATLAS F, and the F-4C fighter, and there was a followup inspection of BOMARC. In each instance, the inspecting teams suggested improvements for the development or operation of the weapon system.

The Air Force completely revised its regulation governing host-tenant relationships at USAF installations as a result of Inspector General findings that some commanders of tenant units were duplicating support functions of host commands. The new regulation, issued in June 1963, will insure more effective use of equipment, facilities, and manpower.

The major inspection workload, however, was devoted to a wide variety of Air Force problem areas in the production of reconnaissance equipment, professional education for officers, management of personnel in critical career fields, medical services, the Civil Reserve Air Fleet, support for ground electronic engineering installations, war readiness materiel, and the materiel failure data-analysis system.

Safety

The Air Force again significantly improved its flying safety record. Major aircraft accidents per 100,000 flying hours dropped to 5 as against 5.7 during the previous year; the total numbered 343—46 less than in 1962. There were 279 aircraft destroyed, a decrease of 13. The number of aircraft accidents resulting in fatalities rose from 118 in 1962 to 127 in 1963, but fatalities dropped from 297 to 293. Aircraft accident losses were \$56 million less than in the previous year.

Despite two B-52 accidents in January 1963, the Nation's principal strategic bomber continued to maintain the lowest accident rate among current USAF combat aircraft. It also achieved the best safety record of all bombers in USAF history.

Missile safety precautions in the Air Force were expanded with the increase of missiles and missile units. Safety features were engineered into each weapon system at the blueprint and production stages. This assured greater reliability as well as safer handling and operation of weapon systems.

Nuclear safety inspection teams surveyed 19 different weapon systems at 60 bases or units. Special operational safety reviews were made of 11 additional weapon systems. In general, the inspectors found that prescribed safety rules were adequate, workable, and effective under existing field conditions. They paid special attention to command nuclear safety programs and to the qualifications of officers responsible for nuclear safety. The Nuclear Reactor System Safety Group examined the System for Nuclear Auxiliary Power (SNAP) 9A program and found it met safety criteria. An Air Force-conducted special safety survey of the AEC's nuclear power reactor at Sundance,

Wyo., confirmed that it met safety specifications. The Air Force accepted the facility in October 1962.

Life science projects concerned with safety matters increased, with 38 currently under way. There has been a heavy flow of requests for studies, advice, and assistance in this area from both U.S. and foreign government agencies and civilian research organizations.

Safety matters require constant liaison with other Government agencies. For example, the Air Force has assisted the Fish and Wildlife Service of the Department of Interior and the Federal Aviation Agency with their research on the bird-aircraft problem. As the herring gull is one of the species most frequently involved in collisions with military and civilian aircraft, the Air Force has taken aerial photographs of their nesting colonies along the North Atlantic coast to study means of coping with the problem.

USAF representatives attended a meeting of 11 NATO operational commands at Bagnoli, Italy, on problems of flight safety and standardization. The conferees accepted USAF recommendations on such matters as investigation and reporting of accidents, aircraft navigation and anticollision lights, formation lights, emergency markings, in-flight distress signals, rules for air shows, and missile accident prevention.

Ground accidents declined 9 percent during calendar year 1962. Disabling injuries to military and civilian personnel dropped by the same percentage, representing a significant decline of 1,000 injuries. There were 5 percent fewer motor vehicle fatalities, while fatalities from all types of ground accidents declined 3 percent from the previous year.

Again the Air Force received "honorable mention" in the President's Safety Award program. For the 13th consecutive year the Air Force won the National Safety Council's Award of Honor for accident prevention, a record attained by no other Federal agency. Over a 12-year period the total number of Air Force ground accidents declined from 14,559 in 1950 to 11,706 in 1962, a reduction of 19.6 percent.

Security

Above-ground security surveillance equipment continued to be installed and tested at ATLAS, TITAN, and MINUTEMAN sites as these weapon systems became operational. For the MMRBM, still under research and development, the Inspector General developed a unique security concept using helicopters for quick response to sabotage threats or other danger.

The Directorate of Special Investigations completed 660,000 assignments, an increase of 17.4 percent over the previous year. Personnel security investigations accounted for 607,400, criminal procurement fraud cases for 23,600, and counterintelligence activities for 29,000.

One procurement investigation enabled the Contract Adjustment Board to deny a claim against the Air Force for \$1.09 million. In another, the Air Force won a settlement of \$525,000 from a contractor and subcontractor who had received excess profits in the manufacture of generator sets for B-47 aircraft.

In December 1962, all USAF special investigation agencies were consolidated into a single agency. This promised more efficient operations and increased flexibility to meet changing worldwide requirements.

In the area of counterintelligence, a special program conducted by the Federal Bureau of Investigation and the Air Force Directorate of Special Investigations gave additional protection to SAC bases and missile sites.

Pay and allowance irregularities during the year prompted the Air Force to instigate action that resulted in 29 courts-martial and 35 disciplinary actions.

XI. Budget

1963 Budget

The Air Force budget request for fiscal year 1963, as approved by the President, totaled \$19.758 billion in new obligational authority, including \$831 million for military construction. The Department of Defense appropriation bill, enacted by Congress in August 1962, gave the Air Force \$19.391 billion in new obligational authority. A separate bill contained \$866.8 million for military construction (including \$67.7 million for family housing not earlier requested as a direct appropriation in the Air Force budget). In May 1963, Congress added \$92.3 million in a supplemental appropriation. Thus, a total of \$20.350 billion was appropriated in new obligational authority for fiscal year 1963. This was \$992 million above the amount appropriated for the previous year.

The increase in the Air Force budget request over 1962 appropriations was principally for more operational equipment, modification, and construction in support of the ballistic missile program; accelerated procurement of tactical fighters; initial procurement of C-141 jet transports; and an improved conventional war capability. The Congress added \$191.6 million for the B-70 and \$42 million for the X-20 Dyna-Soar above the amounts requested by the President. The May supplemental covered increased basic quarters allowances for military personnel, lump-sum readjustment payments for involuntarily released reservists, and civilian pay increases.

The major categories of the fiscal year 1963 appropriations, including the supplemental but not the military construction, were as follows: Operation and maintenance (including ANG), \$4.602 billion; military personnel (including AFR and ANG), \$4.271 billion (plus \$70 million from working capital funds); aircraft procurement, \$3.562 billion; missile procurement, \$2.459 billion; RDT&E, \$3.632 billion; and other procurement, \$956 million. The airlift modernization appropriation, established during fiscal year 1961, was merged with the aircraft procurement appropriation.

The following table summarizes the amounts made available by direct appropriations and fund transfers:

AMOUNTS AVAILABLE FOR OBLIGATION BY THE AIR FORCE DURING
FISCAL YEAR 1963—AS OF JUNE 30, 1963

(In Millions of Dollars)¹

Department of Defense Appropriation Act, 1963.....	19,390.6
Military Construction Appropriation Act, 1963.....	866.8
Supplemental Appropriation Act, 1963.....	92.3
Total new obligational authority enacted.....	20,349.7
Unobligated balance of prior-year programs.....	2,814.2
Transfer to Family Housing (Defense Family Housing Management Account) from:	
Military Personnel, AF.....	-90.4
Operation & Maintenance, AF.....	-88.3
O&M, Alaska Communication System, AF.....	-.9
Research Development, Test & Evaluation, AF.....	-5.7
Military Construction, AF.....	-72.5
Transfer to Emergency Fund, DOD, from:	
Military Personnel, AF.....	-22.0
Reserve Personnel, AF.....	-1.4
National Guard Personnel, AF.....	-3.7
Transfer to Operation & Maintenance, Defense Agencies, from:	
Operation & Maintenance, AF.....	-.9
Research, Development, Test & Evaluation, AF.....	(²)
Transfer to Operating Expenses, Public Building Service, GSA, from:	
Operation & Maintenance, AF.....	-.4
Transfer to Procurement, Defense Agencies, from:	
Other Procurement, AF.....	-.1
Transfer from Emergency Fund, DOD, to:	
Operation & Maintenance, AF.....	27.1
Research, Development, Test & Evaluation, AF.....	66.2
Transfer from Military Personnel, Navy, to:	
Military Personnel, AF.....	1.2
Transfer from Air Force Stock Fund to:	
Military Personnel, AF.....	47.3
Transfer from Operation & Maintenance, Defense Agencies, to:	
Operation & Maintenance, AF.....	3.7
Transfer from O&M, Alaska Communication System, Army, to:	
O&M, Alaska Communication System, AF.....	6.9
Transfer from Research, Development, Test & Evaluation, Army, to:	
Research, Development, Test & Evaluation, AF.....	5.0
Transfer from Construction, Alaska Communication System, to:	
Military Construction, AF.....	.4
Anticipated reimbursements.....	1,224.4
Total available for obligation during fiscal year 1963.....	24,260.5

¹ Represents nearest rounded figures.

² Indicates an amount less than \$50,000.

Actual obligations and expenditures for fiscal year 1963 are summarized in the table below. The total of \$21,202 million for obligations compares with \$20,999.7 million for 1962 and \$19,824.1 million for 1961. The total of \$20,641.6 million for expenditures compares with \$20,839.8 million for 1962 and \$19,778.2 million for 1961.

USAF ACTUAL OBLIGATIONS AND NET EXPENDITURES FOR FISCAL
YEAR 1963—AS OF JUNE 30, 1963

(In Millions of Dollars)¹

	Obligations	Net expenditures
Military Personnel.....	4, 134. 2	4, 102. 7
Reserve Personnel.....	48. 6	48. 6
National Guard Personnel.....	49. 4	45. 4
Operation and Maintenance.....	4, 761. 4	4, 483. 0
O&M, Alaska Communication System.....	6. 7	5. 8
O&M, Air National Guard.....	195. 3	193. 3
Aircraft Procurement.....	3, 694. 0	3, 746. 1
Missile Procurement.....	2, 520. 7	2, 675. 8
Other Procurement.....	1, 108. 9	1, 251. 2
Aircraft, Missiles, & Related Procurement.....		18. 3
Procurement Other Than Aircraft & Missiles.....		6. 6
Research, Development, Test & Evaluation.....	4, 025. 1	3, 300. 4
Military Construction.....	635. 5	715. 4
Military Construction, AF Reserve.....	5. 0	4. 6
Military Construction, Air National Guard.....	17. 3	21. 9
Miscellaneous.....		22. 4
Total.....	21, 202. 0	20, 641. 6

¹ Represents nearest rounded figure. Amounts will not necessarily add to total.

Budget Management

In preparing its fiscal year 1963 budget, the Air Force used for the first time the new budget system introduced by the Office of the Secretary of Defense in 1961. The system is based on a current 5-year force structure and financial plan that integrates planning, programming, and financial management of seven major "program packages": Strategic Retaliatory Forces, Continental Air and Missile Defense Forces, General Purpose Forces, Airlift and Sea Forces, Reserve and Guard Forces, Research and Development, and General Support. These, in turn, are broken down into "program elements" such as the B-52 or ATLAS. The new system establishes an approved program and financial base to assure advance program data for 9 years and financial data for 6 years. When refined, the system will facilitate decision-making through more uniformity in gathering and presenting

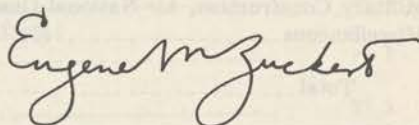
data, and allow for selection of alternate weapon systems and defense programs.

Future Air Force budgets will be prepared with greater participation by field commands to reflect more details of program elements. Air Force management policies and procedures are being adapted to the new budgeting system, especially through the use of computers to develop cost and other financial data and to keep the 5-year force structure and financial plan current.

1964 Budget

For fiscal year 1964 the President requested \$19.827 billion in new obligational authority for the Air Force, including \$648.2 million for military construction. This was approximately \$524 million less than the sum appropriated by Congress for fiscal year 1963. The decrease was primarily in the missile construction and procurement accounts as a result of the cancellation of SKYBOLT and virtual completion of funding in fiscal year 1963 for the ATLAS, TITAN I, and TITAN II programs.

Unprogramed prior-year funds, recoupments, and sales of free assets were expected to provide an additional \$794.7 million. The President also asked for authority to make cash transfers of \$30 million from working capital fund accounts. Thus about \$20.6 billion should be available for direct program financing for fiscal year 1964.



EUGENE M. ZUCKERT,
Secretary of the Air Force.

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89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Appendix

1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
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89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Appendix

STATISTICAL INFORMATION

	Page
TABLE 1. MAJOR FORCES BY DEPARTMENT, JUNE 30, 1961, 1963, AND 1964.....	318
2. MAJOR FORCES BY MISSION, JUNE 30, 1961, 1963, AND 1964...	319
3. FINANCIAL SUMMARY, FY 1962-64.....	320
<i>Budget and Finance</i>	
4. NEW OBLIGATIONAL AVAILABILITY FOR MILITARY FUNCTIONS, FY 1963.....	321
5. OBLIGATIONS FOR MILITARY FUNCTIONS, FY 1962-63.....	322
6. EXPENDITURES FOR MILITARY FUNCTIONS, FY 1962-63.....	324
7. DEFENSE BUDGET, FY 1964.....	326
8. REDUCTIONS IN WORKING CAPITAL FUNDS, FY 1953-63.....	327
9. U.S. DEFENSE EXPENDITURES ENTERING THE INTERNATIONAL BALANCE OF PAYMENTS, FY 1961-63.....	328
<i>Research and Development</i>	
10. RDT&E OBLIGATIONS, FY 1962-64.....	329
<i>Personnel</i>	
11. ACTIVE DUTY MILITARY PERSONNEL, JUNE 30, 1962 AND 1963.....	330
12. DEPLOYMENT OF MILITARY PERSONNEL, JUNE 30, 1962 AND 1963.....	331
13. MILITARY PERSONNEL BY GRADE, JUNE 30, 1963.....	332
14. ENLISTED PERSONNEL PROCUREMENT, FY 1962-63.....	333
15. REENLISTMENT RATES, FY 1962-63.....	334
16. DEPENDENTS OF MILITARY PERSONNEL, MARCH 31, 1963.....	335
17. WOMEN MILITARY PERSONNEL, JUNE 30, 1962 AND 1963.....	336
18. CIVILIAN PERSONNEL, JUNE 30, 1962 AND 1963.....	337
19. OSD-JCS PERSONNEL, JUNE 30, 1962 AND 1963.....	338
20. OTHER DEFENSE ACTIVITIES PERSONNEL, JUNE 30, 1962 AND 1963.....	339
21. RESERVE PERSONNEL, JUNE 30, 1963.....	340
22. RESERVE PERSONNEL NOT ON ACTIVE DUTY, JUNE 30, 1962 AND 1963.....	341

	Page
TABLE 23. RESERVE PERSONNEL IN PAID STATUS, JUNE 30, 1962 AND 1963.....	342
24. RESERVE ACTIVE DUTY BASIC TRAINING PROGRAM, AUGUST 1955-JUNE 1963.....	343
25. MEDICAL CARE IN DEFENSE FACILITIES, FY 1962-63.....	344
26. DEPENDENTS MEDICARE PROGRAM, FY 1962-63.....	345

Logistics

27. COST REDUCTION PROGRAM, FY 1963-65.....	346
28. PROPERTY HOLDINGS, JUNE 30, 1962 AND 1963.....	347
29. CONTRACT AWARDS BY PROGRAM, FY 1962-63.....	348
30. CONTRACT AWARDS BY TYPE OF CONTRACTOR, FY 1962-63.....	349
31. CONTRACT AWARDS BY PRICING PROVISION, FY 1962-63.....	350
32. CONTRACT AWARDS BY COMPETITIVE STATUS, FY 1962-63.....	351
33. CONTRACT AWARDS BY REGION AND STATE, FY 1963.....	352
34. DEFENSE-WIDE SUPPLY, JUNE 30, 1962 AND 1963.....	354
35. DEFENSE-WIDE TRANSPORTATION SERVICES, FY 1962-63.....	355
36. FEDERAL CATALOG SYSTEM, FY 1962-63.....	356
37. MAJOR STORAGE FACILITIES, FY 1962-63.....	357
38. EXCESS AND SURPLUS PROPERTY, FY 1962-63.....	358
39. REAL PROPERTY HOLDINGS, JUNE 30, 1962 AND 1963.....	359
40. FAMILY HOUSING, JUNE 30, 1962 AND 1963.....	360

Military Assistance

41. MILITARY ASSISTANCE, FY 1950-63.....	361
42. MILITARY ASSISTANCE OBLIGATIONS AND EXPENDITURES, FY 1950-63.....	362
43. MILITARY ASSISTANCE DELIVERIES, FY 1950-63.....	363

Note. Subtotals in these tables may not add to totals due to rounding.

Table 1 MAJOR FORCES BY DEPARTMENT

	June 30, 1961 (actual) ¹	June 30, 1963 (actual)	June 30, 1964 (estimated) ²
DEPARTMENT OF DEFENSE			
Active Duty Personnel.....	2, 483, 771	2, 699, 677	2, 686, 821
Active Aircraft Inventory.....	31, 262	30, 781	30, 284
DEPARTMENT OF THE ARMY			
Divisions.....	14	16	16
Regiments/RCTs.....	6	4	4
Armored Combat Commands.....	1		
Brigades.....	2	4	7
Battle Groups.....	8	6	
Special Forces Groups.....	3	6	7
Army Missile Commands.....	4	2	2
Surface-to-Surface Missile Battalions.....	421½	481½	38
Air Defense Missile Battalions.....	76¼	63¼	58¼
Active Duty Personnel.....	858, 622	975, 916	971, 527
Active Aircraft Inventory.....	5, 564	6, 001	6, 525
DEPARTMENT OF THE NAVY			
Commissioned Ships in Fleet.....	819	857	871
Warships.....	(375)	(383)	(394)
Other.....	(444)	(474)	(477)
Carrier Air Groups.....	17	17	17
Carrier Antisubmarine Air Groups.....	11	11	11
Patrol and Warning Squadrons.....	38	35	35
Marine Divisions.....	3	3	3
Marine Air Wings.....	3	3	3
Active Duty Personnel.....	803, 998	854, 330	859, 992
Navy.....	(627, 089)	(664, 647)	(669, 992)
Marine Corps.....	(176, 909)	(189, 683)	(190, 000)
Active Aircraft Inventory.....	8, 793	8, 756	8, 456
DEPARTMENT OF THE AIR FORCE			
USAF Combat Wings.....	88	86	83
Strategic Wings.....	(37)	(33)	(33)
Air Defense Wings.....	(19)	(18)	(14)
Tactical Wings (including airlift).....	(32)	(35)	(36)
USAF Combat Support Flying Squadrons.....	121	134	129
Active Duty Personnel.....	821, 151	869, 431	855, 302
Active Aircraft Inventory.....	16, 905	16, 024	15, 303

¹ June 30, 1961, is used as base date because the force structure on June 30, 1962, included reserve units temporarily on active duty during the Berlin crisis.

² As planned for fiscal year 1965 budget.

Table 2

MAJOR FORCES BY MISSION

	June 30, 1961 (actual) ¹	June 30, 1963 (actual)	June 30, 1964 (estimated) ²
STRATEGIC RETALIATORY FORCES			
Intercontinental Ballistic Missiles			
MINUTEMAN Squadrons.....		2	12
TITAN Squadrons.....		7	12
ATLAS Squadrons.....	4	13	13
POLARIS Submarines.....	5	12	22
Strategic Bombers			
B-52 Wings.....	13	14	14
B-58 Wings.....	1	2	2
B-47 Wings.....	20	13	10
CONTINENTAL AIR AND MISSILE DEFENSES			
Manned Fighter Interceptor Squadrons.....	42	42	40
Interceptor Missile (BOMARC) Squadrons.....	7	8	8
Army Air Defense Missile Battalions ³	49½	31½	26½
GENERAL PURPOSE FORCES			
Army Divisions.....	⁴ 14	16	16
Army Surface-to-Surface Missile Battalions.....	42½	48½	38
Army Air Defense Missile Battalions.....	26¾	31¾	31¾
Army Special Forces Groups.....	3	6	7
Warships			
Attack Carriers.....	15	15	15
Antisubmarine Warfare Carriers.....	9	9	9
Nuclear Attack Submarines.....	13	16	23
Other.....	328	326	320
Amphibious Assault Ships.....	110	132	133
Carrier Air Groups (Attack and Anti-submarine Warfare).....	28	28	28
Marine Corps Divisions/Air Wings.....	3	3	3
USAF Tactical Forces Aircraft Squadrons.....	93	109	110
AIRLIFT AND SEALIFT FORCES			
Airlift Aircraft Squadrons			
C-130 through C-141.....	16	26	34
C-118 through C-124.....	35	31	27
Troopships, Cargo Ships, and Tankers.....	99	101	99

¹ June 30, 1961, is used as base date because the force structure on June 30, 1962, included reserve units temporarily on active duty during the Berlin crisis.

² As planned for fiscal year 1965 budget.

³ Decrease reflects phaseout of NIKE-AJAX and transfer of NIKE-HERCULES battalions to Army National Guard.

⁴ Includes three training divisions not ready for combat.

Table 3

FINANCIAL SUMMARY

(In Billions of Dollars)

	Fiscal year 1962		Fiscal year 1963	Fiscal year 1964	
	Original ¹	Final ²		Original ³	Revised ⁴
NEW OBLIGATIONAL AUTHORITY	43.7	49.4	51.1	53.7	⁵ 51.0
Financing Adjustments ⁶	1.3	1.5	1.1	1.5	1.5
TOTAL OBLIGATIONAL AUTHORITY ⁷	44.9	51.0	52.2	55.2	⁵ 52.5
BY PROGRAM					
Strategic Retaliatory Forces	7.6	9.1	8.4	7.3	7.3
Continental Air and Missile Defense Forces	2.2	2.1	1.9	2.0	1.9
General Purpose Forces	14.5	17.5	17.8	19.1	18.1
Airlift/Sealift Forces	.9	1.2	1.4	1.4	1.3
Reserve and Guard Forces	1.7	1.8	1.8	2.0	2.0
Research and Development	3.9	4.2	5.1	5.9	5.4
General Support	11.4	11.8	13.2	13.4	13.9
Retired Pay	.9	.9	1.0	1.2	1.2
Civil Defense		.3	.1	.3	.1
Military Assistance	1.8	1.8	1.6	1.6	1.1
Proposed Legislation for Military Compensation				.9	
BY DEPARTMENT AND AGENCY					
Department of the Army	10.4	12.6	12.0	13.1	12.7
Department of the Navy	12.4	14.8	15.1	15.5	15.0
Department of the Air Force	18.5	19.8	20.7	20.7	20.5
Office of Civil Defense		.3	.1	.3	.1
Defense Agencies/Office of the Secretary of Defense ⁸	.4	.3	.9	1.2	1.1
Retired Pay	.9	.9	1.0	1.2	1.2
Defense Family Housing ⁹	.5	.5	.7	.7	.7
Military Assistance	1.8	1.8	1.6	1.6	1.1
Proposed Legislation				.9	

¹ As proposed in budget estimates of January 16, 1961.² Based on appropriation acts as approved by the Congress.³ As proposed in budget estimates of January 17, 1963.⁴ As presented in budget estimates of January 21, 1964.⁵ Includes supplemental appropriation request of \$1.1 billion for military personnel.⁶ Consists of reimbursements, transfers, reprogramming, and other adjustments.⁷ Total obligational authority represents the total financial requirements for the program approved for initiation in a given fiscal year, regardless of the year in which the funds were authorized or appropriated.⁸ Exclusive of Retired Pay and Family Housing.⁹ Funds for this activity were appropriated to the military departments in fiscal year 1962.

Table 4

NEW OBLIGATIONAL AVAILABILITY FOR MILITARY FUNCTIONS FISCAL YEAR 1963

(In Millions of Dollars)

	Department of Defense	Army	Navy	Air Force	Defense-wide activities ¹
TOTAL.....	50, 204	11, 955	15, 325	20, 226	2, 698
MILITARY PERSONNEL.....	13, 129	4, 402	3, 499	4, 202	1, 026
Active Forces.....	11, 431	3, 936	3, 391	4, 104	-----
Reserve Forces.....	672	466	108	98	-----
Retired Pay.....	1, 026	-----	-----	-----	1, 026
OPERATION & MAINTENANCE.....	11, 496	3, 538	3, 014	4, 550	394
PROCUREMENT.....	16, 667	2, 519	7, 133	6, 978	37
Aircraft.....	5, 882	215	2, 105	3, 562	-----
Missiles.....	3, 969	558	952	2, 459	-----
Ships.....	2, 939	-----	2, 939	-----	-----
Ordnance, etc.....	1, 959	1, 165	474	318	2
Electron. & Communic.....	1, 176	278	359	529	10
Other Procurement.....	742	304	304	109	25
RDT&E.....	6, 993	1, 329	1, 511	3, 698	456
Military Sciences.....	897	179	162	108	447
Aircraft.....	617	59	162	395	-----
Missiles.....	2, 467	456	671	1, 340	-----
Ships.....	235	1	233	-----	-----
Astronautics.....	1, 233	87	55	1, 088	3
Ordnance, etc.....	250	153	97	-----	-----
Other Equipment.....	812	280	56	476	-----
Program-wide Mgmt.....	478	114	73	291	-----
Emergency Fund.....	5	-----	-----	-----	5
CIVIL DEFENSE.....	126	-----	-----	-----	126
CONSTRUCTION.....	1, 204	166	168	799	70
Active Forces.....	1, 163	151	161	780	70
Reserve Forces.....	41	15	7	19	-----
FAMILY HOUSING.....	590	-----	-----	-----	590

¹ Includes Office of the Secretary of Defense, Joint Chiefs of Staff, Defense agencies, Office of Civil Defense, etc.

Table 5

**OBLIGATIONS FOR MILITARY FUNCTIONS
FISCAL YEARS 1962-63**

(In Millions of Dollars)

	Unobligated balance brought forward	New obligational availability	Reimbursements, recoveries, etc.	Total obligational availability	Obligations	Unobligated balance carried forward ¹
DEPARTMENT OF DEFENSE						
Fiscal Year 1962-----	7, 167	48, 232	3, 222	58, 622	51, 504	7, 120
Fiscal Year 1963-----	7, 120	50, 204	4, 267	61, 592	52, 292	9, 170
BY FUNCTIONAL TITLE						
<i>Military Personnel</i>						
Fiscal Year 1962-----		13, 098	256	13, 354	13, 309	(²)
Fiscal Year 1963-----	(²)	13, 129	254	13, 383	13, 311	(²)
<i>Operation & Maintenance</i>						
Fiscal Year 1962-----	84	11, 759	1, 188	13, 031	13, 009	75
Fiscal Year 1963-----	75	11, 496	1, 444	13, 015	12, 884	101
<i>Procurement</i>						
Fiscal Year 1962-----	5, 723	16, 780	1, 138	23, 641	17, 911	5, 730
Fiscal Year 1963-----	5, 730	16, 667	1, 400	23, 796	16, 680	7, 093
<i>RDT&E</i>						
Fiscal Year 1962-----	676	5, 368	412	6, 455	5, 677	778
Fiscal Year 1963-----	778	6, 993	506	8, 277	7, 317	955
<i>Civil Defense</i>						
Fiscal Year 1962-----		256	1	257	249	2
Fiscal Year 1963-----	2	126	(²)	128	110	18
<i>Construction</i>						
Fiscal Year 1962-----	684	972	228	1, 883	1, 349	534
Fiscal Year 1963-----	534	1, 204	552	2, 290	1, 420	870
<i>Family Housing</i>						
Fiscal Year 1962 ³ -----						
Fiscal Year 1963-----		590	112	702	570	132

See footnotes at end of table.

Table 5—Continued

**OBLIGATIONS FOR MILITARY FUNCTIONS
FISCAL YEARS 1962-63**

(In Millions of Dollars)

	Unobligated balance brought forward	New obligational availability	Reimbursements, recoveries, etc.	Total obligational availability	Obligations	Unobligated balance carried forward ¹
BY AGENCY						
<i>Army</i>						
Fiscal Year 1962.....	790	12,481	2,060	15,331	14,217	1,212
Fiscal Year 1963.....	1,212	11,955	2,069	15,236	13,620	1,556
<i>Navy</i>						
Fiscal Year 1962.....	2,439	14,805	662	17,906	14,872	2,998
Fiscal Year 1963.....	2,998	15,325	818	19,141	14,826	4,264
<i>Air Force</i>						
Fiscal Year 1962.....	3,827	19,513	499	23,839	21,000	2,814
Fiscal Year 1963.....	2,814	20,226	1,220	24,260	21,202	3,058
<i>OSD and Defense Agencies</i>						
Fiscal Year 1962.....	111	1,178	(²)	1,289	1,167	94
Fiscal Year 1963.....	94	2,572	160	2,826	2,534	274
<i>Office of Civil Defense</i>						
Fiscal Year 1962.....	-----	256	1	257	249	2
Fiscal Year 1963.....	2	126	(²)	128	110	18

¹ Consists of preclosing balance minus expired funds.² Less than \$500,000.³ Included in other appropriation accounts during fiscal year 1962.

Table 6

EXPENDITURES FOR MILITARY FUNCTIONS FISCAL YEARS 1962-63

(In Millions of Dollars)

	Unex- pended balance brought forward	New ex- penditure avail- ability	Total available for ex- penditure	Expendi- tures	Unex- pended balance carried forward ¹
DEPARTMENT OF DE- FENSE					
Fiscal Year 1962.....	28,606	47,224	75,830	46,815	28,697
Fiscal Year 1963.....	28,697	49,794	78,491	48,252	30,019
BY FUNCTIONAL TITLE					
<i>Military Personnel</i>					
Fiscal Year 1962.....	626	13,098	13,724	13,032	486
Fiscal Year 1963.....	486	13,129	13,615	13,000	442
<i>Operation & Maintenance</i>					
Fiscal Year 1962.....	2,027	11,759	13,787	11,639	2,041
Fiscal Year 1963.....	2,041	11,548	13,590	11,845	1,742
<i>Procurement</i>					
Fiscal Year 1962.....	19,560	16,122	35,682	15,901	19,785
Fiscal Year 1963.....	19,785	16,614	36,400	16,660	19,705
<i>RDT&E</i>					
Fiscal Year 1962.....	2,990	5,367	8,357	4,904	3,452
Fiscal Year 1963.....	3,452	6,993	10,445	6,376	4,065
<i>Civil Defense</i>					
Fiscal Year 1962.....		292	292	90	193
Fiscal Year 1963.....	193	126	319	203	113
<i>Construction</i>					
Fiscal Year 1962.....	1,718	973	2,690	1,347	1,343
Fiscal Year 1963.....	1,343	1,192	2,535	1,144	1,392
<i>Family Housing</i>					
Fiscal Year 1962 ²					
Fiscal Year 1963.....		704	704	427	278
<i>Revolving & Mgmt Funds</i>					
Fiscal Year 1962.....	1,684	-387	1,297	³ -99	1,395
Fiscal Year 1963.....	1,395	-512	883	³ -1,401	2,283

See footnotes at end of table.

Table 6—Continued

**EXPENDITURES FOR MILITARY FUNCTIONS
FISCAL YEARS 1962-63**

(In Millions of Dollars)

	Unex- pended balance brought forward	New ex- penditure avail- ability	Total available for ex- penditure	Expendi- tures	Unex- pended balance carried forward ¹
BY AGENCY					
<i>Army</i>					
Fiscal Year 1962 ----	4, 605	12, 095	16, 700	11, 427	5, 241
Fiscal Year 1963 ----	5, 241	11, 751	16, 992	11, 499	5, 386
<i>Navy</i>					
Fiscal Year 1962 ----	11, 083	14, 751	25, 835	13, 260	12, 477
Fiscal Year 1963 ----	12, 477	15, 341	27, 817	14, 005	13, 771
<i>Air Force</i>					
Fiscal Year 1962 ----	12, 412	18, 855	31, 267	20, 840	10, 278
Fiscal Year 1963 ----	10, 278	20, 175	30, 453	20, 642	9, 764
<i>OSD & Defense Agencies</i>					
Fiscal Year 1962 ----	505	1, 229	1, 734	1, 198	507
Fiscal Year 1963 ----	507	2, 402	2, 909	1, 905	985
<i>Office of Civil Defense</i>					
Fiscal Year 1962 ----	-----	294	294	90	194
Fiscal Year 1963 ----	194	126	320	203	114

¹ Net balance after withdrawals and restorations of unexpended balances as provided in Public Law 798.

² Included in other appropriation accounts during fiscal year 1962.

³ Reimbursements exceeded expenditures.

Table 7

DEFENSE BUDGET
FISCAL YEAR 1964¹

(New Obligational Availability in Millions of Dollars)

	Budget estimates, January 17, 1963	Amendments, June 6, 1963	Revised estimates	Appropriation acts ²
TOTAL, MILITARY FUNCTIONS -----	51, 581	47	51, 628	³ 49, 237
BY FUNCTIONAL TITLE				
Military Personnel-----	13, 535	-----	13, 535	13, 176
Operation and Maintenance-----	11, 792	-----	11, 792	11, 709
Procurement-----	16, 725	-----	16, 725	15, 706
RDT&E-----	7, 262	-----	7, 262	6, 949
Civil Defense-----	300	47	347	112
Military Construction-----	1, 232	-----	1, 232	949
Family Housing-----	734	-----	734	637
BY AGENCY				
Army-----	12, 987	-----	12, 987	12, 455
Navy-----	15, 362	-----	15, 362	14, 705
Air Force-----	19, 857	-----	19, 857	19, 048
Defense Agencies-----	3, 075	-----	3, 075	2, 918
Civil Defense-----	300	47	347	112

¹ Excludes funds made available to the Department of Defense for the Military Assistance Program (\$1,000 million) and for Army civil works and civil functions (\$1,148 million).

² Includes the Department of Defense Appropriation Act of October 17, 1963 (Public Law 88-149), the Independent Offices Appropriation Act of December 19, 1963 (Public Law 88-215), and the Military Construction Appropriation Act of December 21, 1963 (Public Law 88-220).

³ Includes direct appropriations of \$48,917 million and congressionally authorized transfers of \$320 million.

Table 8

REDUCTIONS IN WORKING CAPITAL FUNDS FISCAL YEARS 1953-63

(In Millions of Dollars)

	Transfers to other ac- counts in lieu of new appro- priations ¹	Congressional rescissions	Total reductions
TOTAL, FISCAL YEARS 1953-63-----	3, 155. 5	3, 406. 0	6, 561. 5
STOCK FUNDS-----	2, 898. 5	3, 049. 0	5, 947. 5
Fiscal Year 1953-----			
1954-----		535. 0	535. 0
1955-----		550. 0	550. 0
1956-----		1, 454. 0	1, 454. 0
1957-----	² 437. 0	510. 0	947. 0
1958-----	³ 470. 0		470. 0
1959-----	³ 520. 0		520. 0
1960-----	³ 430. 0		430. 0
1961-----	³ 365. 5		365. 5
1962-----	³ 286. 0		286. 0
1963-----	³ 390. 0		390. 0
INDUSTRIAL FUNDS-----	257. 0	357. 0	614. 0
Fiscal Year 1953-----			
1954-----			
1955-----			
1956-----		195. 0	195. 0
1957-----		162. 0	162. 0
1958-----	³ 120. 0		120. 0
1959-----	³ 15. 0		15. 0
1960-----			
1961-----			
1962-----	³ 102. 0		102. 0
1963-----	⁴ 20. 0		20. 0

¹ Amounts actually transferred pursuant to authorization or direction of the Congress.² To finance military construction programs.³ To finance military personnel costs.⁴ To finance Navy ship building and conversion costs.

Table 9

U.S. DEFENSE EXPENDITURES ENTERING THE INTERNATIONAL BALANCE OF PAYMENTS

(In Millions of Dollars)

	Fiscal year 1961	Fiscal year 1962	Fiscal year 1963
DEPARTMENT OF DEFENSE EXPENDITURES			
<i>Support of U.S. Forces</i>	2, 416. 1	2, 411. 6	2, 457. 0
Expenditures by Military and Civilian Personnel ¹	772. 5	756. 9	786. 5
Foreign Nationals.....	362. 2	394. 2	432. 0
Procurement:			
Major Equipment.....	61. 0	66. 2	76. 0
Construction.....	157. 3	118. 6	96. 6
Petroleum Products.....	257. 2	262. 5	268. 5
Materials and Supplies.....	300. 8	319. 3	290. 8
Services.....	505. 1	493. 9	506. 6
<i>Military Assistance</i>	311. 4	227. 7	317. 9
Offshore Procurement.....	130. 9	100. 8	118. 4
NATO Infrastructure.....	104. 4	35. 3	88. 3
Other.....	76. 1	91. 6	111. 2
<i>Net Change in Foreign Currency Holdings</i>	-2. 0	13. 3	-6. 3
OTHER AGENCIES' EXPENDITURES ²	343. 4	275. 6	248. 1
TOTAL EXPENDITURES	3, 068. 9	2, 928. 2	3, 016. 7
CASH RECEIPTS ³	-318. 9	-898. 6	-1, 334. 4
NET ADVERSE BALANCE	2, 750. 0	2, 029. 6	1, 682. 3

¹ Includes expenditures for goods and services by nonappropriated fund activities.

² Expenditures entering balance of international payments by the Atomic Energy Commission and other agencies included in the NATO definition of defense expenditures.

³ Includes only: (1) Sales of military items through U.S. Department of Defense; (2) reimbursements to the United States for logistical support of United Nations forces and other nations' defense forces; (3) sales of services and excess personal property. Excludes estimates of receipts for military equipment procured through U.S. private sources, except when covered by government-to-government agreements, such as those with the Federal Republic of Germany and Italy. Commercial receipts are included in the private sector of the U.S. balance of payments.

Table 10

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION PROGRAMS OBLIGATIONS

(In Millions of Dollars)

	Fiscal year 1962 (actual)	Fiscal year 1963 (actual)	Fiscal year 1964 (estimated)
TOTAL.....	6,880.9	7,371.0	7,655.4
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION.....	6,346.4	6,886.8	7,130.0
Military Sciences.....	765.5	925.7	888.2
Aircraft and Related Equipment.....	614.5	724.1	967.9
Missiles and Related Equipment.....	2,752.6	2,525.4	2,140.0
Military Astronautics and Related Equipment.....	784.8	1,234.8	1,263.9
Ships, Small Craft, and Related Equip- ment.....	204.6	223.9	265.1
Ordnance, Combat Vehicles, and Re- lated Equipment.....	202.9	249.0	329.3
Other Equipment.....	526.0	513.7	638.1
Management and Support.....	495.5	490.2	536.5
Emergency Fund ¹			101.0
SUPPORTING ACTIVITIES.....	534.5	484.2	525.4
Military Personnel.....	242.2	238.8	248.4
Procurement.....	109.1	72.7	87.3
Operation and Maintenance.....	65.6	73.3	44.9
Civil Defense.....	18.0	11.0	10.0
Military Assistance.....	7.2	1.2	1.2
Military Construction.....	92.4	87.2	133.6

¹ The emergency funds used during fiscal years 1962 and 1963 have been added to the appropriate sub-categories.

Table 11

ACTIVE DUTY MILITARY PERSONNEL

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL					
June 30, 1962----	2, 807, 819	1, 066, 404	666, 428	190, 962	884, 025
June 30, 1963----	2, 699, 677	975, 916	664, 647	189, 683	869, 431
OFFICERS					
June 30, 1962----	343, 121	116, 050	75, 302	16, 861	134, 908
June 30, 1963----	334, 351	108, 302	75, 549	16, 737	133, 763
<i>Regulars</i>					
June 30, 1962----	159, 685	41, 356	48, 837	10, 590	58, 902
June 30, 1963----	160, 001	41, 575	48, 724	10, 479	59, 223
<i>Reserves¹</i>					
June 30, 1962----	183, 436	74, 694	26, 465	6, 271	76, 006
June 30, 1963----	174, 350	66, 727	26, 825	6, 258	74, 540
ENLISTED					
June 30, 1962----	2, 452, 466	948, 597	584, 071	173, 615	746, 183
June 30, 1963----	2, 354, 531	865, 768	583, 596	172, 541	732, 626
OFFICER CAN- DIDATES					
June 30, 1962----	12, 232	1, 757	7, 055	486	2, 934
June 30, 1963----	10, 795	1, 846	5, 502	405	3, 042

¹ Members of reserve components, including National Guard, plus a small number of officers without component in the Army of the United States or the Air Force of the United States.

Table 12

DEPLOYMENT OF MILITARY PERSONNEL

(Percentages Listed in Parentheses)

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL					
June 30, 1962-----	2, 807, 819 (100. 0)	1, 066, 404 (100. 0)	666, 428 (100. 0)	190, 962 (100. 0)	884, 025 (100. 0)
June 30, 1963-----	2, 699, 677 (100. 0)	975, 916 (100. 0)	664, 647 (100. 0)	189, 683 (100. 0)	869, 431 (100. 0)
SHORE ACTIVITIES					
June 30, 1962-----	2, 416, 305 (86. 1)	1, 066, 404 (100. 0)	284, 034 (42. 6)	181, 842 (95. 2)	884, 025 (100. 0)
June 30, 1963-----	2, 310, 850 (85. 6)	975, 916 (100. 0)	283, 511 (42. 7)	181, 992 (95. 9)	869, 431 (100. 0)
<i>Continental U.S.</i>					
June 30, 1962-----	1, 695, 471 (60. 4)	652, 918 (61. 2)	244, 623 (36. 7)	139, 145 (72. 9)	658, 785 (74. 5)
June 30, 1963-----	1, 615, 325 (59. 8)	583, 981 (59. 8)	240, 845 (36. 2)	139, 906 (73. 8)	650, 593 (74. 8)
<i>Outside Continental U.S.</i>					
June 30, 1962-----	720, 834 (25. 7)	413, 486 (38. 8)	39, 411 (5. 9)	42, 697 (22. 4)	225, 240 (25. 5)
June 30, 1963-----	695, 525 (25. 8)	391, 935 (40. 2)	42, 666 (6. 4)	42, 086 (22. 2)	218, 838 (25. 2)
AFLOAT & MOBILE ACTIVITIES					
June 30, 1962-----	391, 514 (13. 9)	-----	382, 394 (57. 4)	9, 120 (4. 8)	-----
June 30, 1963-----	388, 827 (14. 4)	-----	381, 136 (57. 3)	7, 691 (4. 1)	-----

Table 13

MILITARY PERSONNEL BY GRADE JUNE 30, 1963

(Percentages Listed in Parentheses)

	Department of Defense	Army	Navy	Marine Corps	Air Force
Total.....	2,699,677	975,916	664,647	189,683	869,431
OFFICERS.....	334,351	108,302	75,549	16,737	133,763
Percent of Total.....	(12.4)	(11.1)	(11.4)	(8.8)	(15.4)
Gen. of the Army—Fleet Admiral.....	4	3	1		
General —Admiral.....	37	13	9	1	14
Lt. General —Vice Admiral.....	108	38	32	5	33
Maj. Gen} —Rear Admiral.....	1,143	200	256	23	167
Brig. Gen} —Rear Admiral.....		252		32	213
Colonel —Captain.....	15,183	5,127	4,169	568	5,319
Lt. Colonel —Commander.....	36,613	12,371	8,111	1,354	14,777
Major —Lt. Commander.....	55,846	17,111	12,467	2,365	23,913
Captain —Lieutenant.....	104,649	29,483	20,068	3,997	51,101
1st Lieutenant —Lieutenant(JG).....	55,350	15,560	14,635	4,185	20,970
2nd Lieutenant —Ensign.....	49,070	18,464	13,700	2,752	14,154
Chief Warrant Officer W-4.....	2,644	1,153	733	89	669
Chief Warrant Officer W-3.....	5,219	2,672	636	132	1,778
Chief Warrant Officer W-2.....	6,184	4,349	741	440	654
Warrant Officer W-1.....	2,301	1,506	1	794	
ENLISTED ¹	2,354,531	865,768	583,596	172,541	732,626
Percent of Total.....	(87.2)	(88.7)	(87.8)	(91.0)	(84.3)
Pay Grade E-9.....	12,004	2,786	2,546	722	5,950
Pay Grade E-8.....	31,902	11,189	7,269	2,345	11,099
Pay Grade E-7.....	118,475	38,492	40,366	6,898	32,719
Pay Grade E-6.....	229,443	81,362	69,612	10,679	67,790
Pay Grade E-5.....	399,950	141,984	93,375	17,277	147,314
Pay Grade E-4.....	457,475	146,889	114,790	30,069	165,727
Pay Grade E-3.....	647,985	290,805	143,066	40,196	173,918
Pay Grade E-2.....	318,492	75,990	91,143	43,149	108,210
Pay Grade E-1.....	138,805	76,271	21,429	21,206	19,899
OFFICER CANDIDATES.....	10,795	1,846	5,502	405	3,042
Percent of Total.....	(0.4)	(0.2)	(0.8)	(0.2)	(0.3)

¹ Enlisted are shown by pay grade due to wide diversity of title. "Proficiency Pay" was being received by 274,414—pay grade E-9, 3,808; pay grade E-8, 10,318; pay grade E-7, 37,742; pay grade E-6, 71,169; pay grade E-5, 97,815; pay grade E-4, 50,809; and pay grade E-3, 2,753.

Table 14

ENLISTED PERSONNEL PROCUREMENT

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL					
Fiscal Year 1962...	981, 069	499, 315	198, 413	50, 513	232, 828
Fiscal Year 1963...	665, 523	270, 298	168, 564	41, 578	185, 083
<i>Inductions</i>					
Fiscal Year 1962...	157, 654	157, 517	-----	65	72
Fiscal Year 1963...	74, 438	74, 387	-----	48	3
<i>First Enlistments</i>					
Fiscal Year 1962...	384, 776	127, 063	107, 414	37, 151	113, 148
Fiscal Year 1963...	327, 694	111, 746	85, 265	28, 369	102, 314
<i>Immediate Reenlist- ments</i>					
Fiscal Year 1962...	240, 312	88, 929	48, 819	9, 674	92, 890
Fiscal Year 1963...	192, 359	68, 664	44, 819	10, 823	68, 053
<i>Other Reenlistments</i>					
Fiscal Year 1962...	25, 998	14, 933	7, 108	656	3, 301
Fiscal Year 1963...	25, 846	14, 523	8, 060	702	2, 561
<i>Reserves to Active Duty</i> ¹					
Fiscal Year 1962...	172, 329	110, 873	35, 072	2, 967	23, 417
Fiscal Year 1963...	45, 186	978	30, 420	1, 636	12, 152

¹ Includes National Guard.

Table 15

REENLISTMENT RATES

(Percentage of Eligibles)

	Department of Defense	Army	Navy	Marine Corps	Air Force
REGULARS					
Fiscal Year 1962.....	57.5	52.8	50.5	41.8	71.1
Fiscal Year 1963.....	53.1	51.5	47.4	35.4	66.3
<i>First Term</i>					
Fiscal Year 1962.....	27.4	23.8	28.3	20.0	35.3
Fiscal Year 1963.....	24.9	22.2	25.1	15.5	35.1
<i>Career</i>					
Fiscal Year 1962.....	88.8	86.8	92.2	83.1	89.5
Fiscal Year 1963.....	88.3	89.2	93.3	84.6	85.4
INDUCTEES (Army)					
Fiscal Year 1962.....		20.1			
Fiscal Year 1963.....		11.2			
FIRST-TERM REGULARS BY OCCUPATIONAL GROUPS					
<i>Ground Combat</i>					
Fiscal Year 1962.....	26.6	29.0		18.0	
Fiscal Year 1963.....	24.4	28.9		13.9	
<i>Electronics</i>					
Fiscal Year 1962.....	25.5	16.0	25.8	16.2	35.3
Fiscal Year 1963.....	22.2	15.3	22.9	11.9	34.3
<i>Other Technical</i>					
Fiscal Year 1962.....	26.6	17.9	32.7	28.5	33.4
Fiscal Year 1963.....	25.9	18.8	29.9	19.9	33.0
<i>Administrative and Clerical</i>					
Fiscal Year 1962.....	28.8	21.7	36.4	25.5	36.0
Fiscal Year 1963.....	27.0	18.8	31.4	18.8	42.6
<i>Mechanics and Repairmen</i>					
Fiscal Year 1962.....	27.2	22.2	26.9	21.1	37.0
Fiscal Year 1963.....	24.7	19.3	24.5	22.3	36.0
<i>Crafts</i>					
Fiscal Year 1962.....	27.5	16.9	28.4	24.2	33.6
Fiscal Year 1963.....	24.9	17.4	22.9	14.0	33.3
<i>Services</i>					
Fiscal Year 1962.....	33.5	30.1	61.0	22.2	34.8
Fiscal Year 1963.....	29.1	27.9	54.4	16.3	28.0
<i>Miscellaneous</i>					
Fiscal Year 1962.....	24.1	32.0	23.3	21.2	28.5
Fiscal Year 1963.....	20.9	32.4	18.9	21.6	38.6

Table 16

**DEPENDENTS OF MILITARY PERSONNEL
MARCH 31, 1963**

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL	3, 863, 907	1, 358, 223	764, 027	190, 653	1, 551, 004
Number Per Military Person.....	1. 44	1. 41	1. 16	1. 00	1. 78
TYPE OF DEPEND- ENT					
Wives.....	1, 321, 285	463, 660	277, 316	71, 834	508, 475
Children.....	2, 391, 532	788, 463	476, 528	117, 398	1, 009, 143
Parents.....	107, 423	76, 085	7, 066	1, 389	22, 883
Other ¹	43, 667	30, 015	3, 117	32	10, 503
LOCATION OF DE- PENDENT					
Continental United States.....	3, 238, 663	1, 067, 987	690, 807	181, 665	1, 298, 204
Alaska.....	46, 166	24, 022	1, 893	83	20, 168
Hawaii.....	66, 425	26, 377	20, 776	5, 164	14, 108
U.S. Territories.....	45, 857	23, 812	7, 826	562	13, 657
Foreign Countries.....	466, 796	216, 025	42, 725	3, 179	204, 867

¹ Consists of all other persons related to the military member and who reside in his household and are dependent in fact on him for over half of their support.

Table 17

WOMEN MILITARY PERSONNEL

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL					
June 30, 1962-----	32, 213	13, 074	8, 666	1, 697	8, 776
June 30, 1963-----	30, 771	12, 144	8, 216	1, 698	8, 713
OFFICERS					
June 30, 1962-----	11, 168	4, 353	2, 740	121	3, 954
June 30, 1963-----	10, 556	3, 852	2, 660	135	3, 909
<i>Regulars</i>					
June 30, 1962-----	3, 873	1, 498	1, 415	87	873
June 30, 1963-----	3, 727	1, 400	1, 358	96	873
<i>Reserves</i>					
June 30, 1962-----	7, 295	2, 855	1, 325	34	3, 081
June 30, 1963-----	6, 829	2, 452	1, 302	39	3, 036
ENLISTED					
June 30, 1962-----	20, 966	8, 721	5, 847	1, 576	4, 822
June 30, 1963-----	20, 110	8, 292	5, 451	1, 563	4, 804
OFFICER CANDIDATES					
June 30, 1962-----	79	-----	79	-----	-----
June 30, 1963-----	105	-----	105	-----	-----

Table 18

CIVILIAN PERSONNEL

	Department of Defense	Defense- wide activities	Army	Navy	Air Force
TOTAL					
June 30, 1962-----	1, 240, 669	21, 457	505, 747	364, 933	348, 532
June 30, 1963-----	1, 213, 384	33, 123	484, 841	360, 050	335, 370
DIRECT HIRE					
June 30, 1962-----	1, 069, 543	21, 457	393, 849	348, 056	306, 181
June 30, 1963-----	1, 049, 765	33, 123	375, 690	343, 970	296, 982
<i>Salaried</i>					
June 30, 1962-----	525, 354	17, 534	213, 305	136, 152	158, 363
June 30, 1963-----	527, 546	26, 426	206, 482	138, 636	156, 002
<i>Wage Board</i>					
June 30, 1962-----	544, 189	3, 923	180, 544	211, 904	147, 818
June 30, 1963-----	522, 219	6, 697	169, 208	205, 334	140, 980
INDIRECT HIRE					
June 30, 1962-----	171, 126	-----	111, 898	16, 877	42, 351
June 30, 1963-----	163, 619	-----	109, 151	16, 080	38, 388

Table 19

OSD-JCS PERSONNEL

	June 30, 1962			June 30, 1963		
	Total	Civilian	Military	Total	Civilian	Military
TOTAL.....	3,382	1,883	1,499	3,964	2,232	1,732
Intermittent Consultants.....	28	28	-----	39	39	-----
Summer Employees.....	102	102	-----	117	117	-----
TOTAL FULL-TIME PERSONNEL.....	3,252	1,753	1,499	3,808	2,076	1,732
OFFICE OF SECRETARY OF DEFENSE.....	1,911	1,415	496	2,247	1,673	574
Secretary and Deputy Secretary.....	13	9	4	15	10	5
Defense Research and Engineering.....	447	312	135	515	352	163
Comptroller.....	190	188	2	256	251	5
Installations and Logistics.....	230	222	8	261	250	11
International Security Affairs.....	279	196	83	344	234	110
Manpower.....	153	95	58	179	122	57
Public Affairs.....	134	71	63	149	84	65
General Counsel.....	65	63	2	71	68	3
Special Staff Assistants.....	162	91	71	189	104	85
Administrative Support Group.....	238	168	70	268	198	70
JOINT CHIEFS OF STAFF ORGANIZATION.....	1,341	338	1,003	1,561	403	1,158
Office of the Chairman.....	23	11	12	25	14	11
Joint Staff.....	633	196	437	708	233	475
Other Joint Chiefs of Staff Activities.....	685	131	554	828	156	672

Table 20

OTHER DEFENSE ACTIVITIES PERSONNEL

	June 30, 1962			June 30, 1963		
	Total	Civilian	Military	Total	Civilian	Military
TOTAL.....	27, 596	19, 976	7, 620	39, 645	30, 891	8, 754
Defense Atomic Support Agency ¹	7, 957	2, 082	5, 875	7, 294	2, 006	5, 288
Defense Communications Agency.....	604	163	441	1, 819	572	1, 247
Office of Civil Defense.....	1, 219	1, 215	4	1, 139	1, 133	6
Defense Supply Agency.....	16, 501	15, 769	732	25, 970	25, 032	938
Armed Forces Information & Education ¹	489	402	87	505	421	84
Court of Military Appeals.....	39	39	-----	39	39	-----
Intradepartmental Activities.....	14	13	1	(²)	(²)	(²)
Interdepartmental Activities.....	59	25	34	53	12	41
International Military Activities.....	132	56	76	133	59	74
Classified Activities.....	582	212	370	2, 693	1, 617	1, 076

¹ Defense Atomic Support Agency and Armed Forces Information and Education personnel were transferred to the "Defense Agencies" account on July 1, 1962.

² Transferred to OSD on February 18, 1963.

Table 21

RESERVE PERSONNEL

JUNE 30, 1963

	Total	Officers	Enlisted ¹
DEPARTMENT OF DEFENSE.....	2, 669, 144	799, 374	1, 869, 770
<i>Department of the Army</i>	1, 527, 725	348, 461	1, 179, 264
Army National Guard.....	369, 994	36, 737	333, 257
Army Reserve.....	1, 157, 731	311, 724	846, 007
<i>Department of the Navy</i>	673, 034	223, 009	450, 025
Naval Reserve.....	530, 487	195, 723	334, 874
Marine Corps Reserve.....	142, 547	27, 286	115, 261
<i>Department of the Air Force</i>	468, 385	227, 904	240, 481
Air National Guard.....	74, 715	10, 002	64, 713
Air Force Reserve.....	393, 670	217, 902	175, 768
ON ACTIVE DUTY ²	233, 612	173, 036	60, 576
<i>Department of the Army</i>	66, 874	65, 604	1, 270
Army National Guard.....	1, 977	1, 568	409
Army Reserve.....	64, 897	64, 036	861
<i>Department of the Navy</i>	91, 986	33, 094	58, 892
Naval Reserve.....	83, 775	26, 825	56, 950
Marine Corps Reserve.....	8, 211	³ 6, 269	1, 942
<i>Department of the Air Force</i>	74, 752	74, 338	414
Air National Guard.....	390	352	38
Air Force Reserve.....	74, 362	73, 986	376
NOT ON ACTIVE DUTY.....	2, 435, 532	626, 338	1, 809, 194
<i>Department of the Army</i>	1, 460, 851	282, 857	1, 177, 994
Army National Guard.....	368, 017	35, 169	332, 848
Army Reserve.....	1, 092, 834	247, 688	845, 146
<i>Department of the Navy</i>	581, 048	189, 915	391, 133
Naval Reserve.....	446, 712	168, 898	277, 814
Marine Corps Reserve.....	134, 336	21, 017	113, 319
<i>Department of the Air Force</i>	393, 633	153, 566	240, 067
Air National Guard.....	74, 325	9, 650	64, 675
Air Force Reserve.....	319, 308	143, 916	175, 392
COAST GUARD RESERVE.....	29, 680	5, 736	23, 944
On Active Duty.....	621	560	61
Not on Active Duty.....	29, 059	5, 176	23, 883

¹ Includes officer candidates.² On continuous or extended active duty, and included in count of military personnel on active duty. Excludes reserves undergoing 2-week annual, 6-month basic, etc., reserve training.³ Includes 11 officers on duty with other Government agencies who are excluded from summaries of active duty strength.

Table 22

RESERVE PERSONNEL NOT ON ACTIVE DUTY

	Total	Ready Reserve	Standby Reserve	Retired Reserve
DEPARTMENT OF DEFENSE				
June 30, 1962.....	2,994,633	2,000,084	796,398	198,151
June 30, 1963.....	2,435,532	1,692,172	508,216	235,144
DEPARTMENT OF THE ARMY				
June 30, 1962.....	1,812,418	1,208,007	496,762	107,649
June 30, 1963.....	1,460,851	1,035,098	293,283	132,470
<i>Army National Guard</i>				
June 30, 1962.....	366,517	366,517	-----	-----
June 30, 1963.....	368,017	368,017	-----	-----
<i>Army Reserve</i>				
June 30, 1962.....	1,445,901	841,490	496,762	107,649
June 30, 1963.....	1,092,834	667,081	293,283	132,470
DEPARTMENT OF THE NAVY				
June 30, 1962.....	716,766	538,282	114,870	63,614
June 30, 1963.....	581,048	414,367	98,059	68,622
<i>Naval Reserve</i>				
June 30, 1962.....	539,185	378,303	104,986	55,896
June 30, 1963.....	446,712	303,476	82,792	60,444
<i>Marine Corps Reserve</i>				
June 30, 1962.....	177,581	159,979	9,884	7,718
June 30, 1963.....	134,336	110,891	15,267	8,178
DEPARTMENT OF THE AIR FORCE				
June 30, 1962.....	465,449	253,795	184,766	26,888
June 30, 1963.....	393,633	242,707	116,874	34,052
<i>Air National Guard</i>				
June 30, 1962.....	50,319	50,319	-----	-----
June 30, 1963.....	74,325	74,325	-----	-----
<i>Air Force Reserve</i>				
June 30, 1962.....	415,130	203,476	184,766	26,888
June 30, 1963.....	319,308	168,382	116,874	34,052
COAST GUARD RESERVE				
June 30, 1962.....	31,334	27,520	3,281	533
June 30, 1963.....	29,059	25,621	2,862	576

Table 23

RESERVE PERSONNEL IN PAID STATUS

	Total in paid status	Paid drill training			Paid active duty training only
		Total	Drill-pay status	Active duty basic training	
DEPARTMENT OF DEFENSE					
June 30, 1962-----	958, 013	889, 117	825, 716	63, 401	68, 896
June 30, 1963-----	964, 361	896, 499	843, 060	53, 439	67, 862
DEPARTMENT OF THE ARMY					
June 30, 1962-----	670, 745	622, 426	568, 380	54, 046	48, 319
June 30, 1963-----	644, 896	597, 699	555, 088	42, 611	47, 197
<i>Army National Guard</i>					
June 30, 1962-----	360, 970	360, 970	323, 883	37, 087	-----
June 30, 1963-----	360, 714	360, 714	332, 153	28, 561	-----
<i>Army Reserve</i>					
June 30, 1962-----	309, 775	261, 456	244, 497	16, 959	48, 319
June 30, 1963-----	284, 182	236, 985	222, 935	14, 050	47, 197
DEPARTMENT OF THE NAVY					
June 30, 1962-----	167, 787	157, 928	152, 052	5, 876	9, 859
June 30, 1963-----	177, 474	165, 868	161, 566	4, 302	11, 606
<i>Naval Reserve</i>					
June 30, 1962-----	119, 179	111, 280	110, 496	784	7, 899
June 30, 1963-----	129, 372	119, 611	119, 029	582	9, 761
<i>Marine Corps Reserve</i>					
June 30, 1962-----	48, 608	46, 648	41, 556	5, 092	1, 960
June 30, 1963-----	48, 102	46, 257	42, 537	3, 720	1, 845
DEPARTMENT OF THE AIR FORCE					
June 30, 1962-----	119, 481	108, 763	105, 284	3, 479	10, 718
June 30, 1963-----	141, 991	132, 932	126, 406	6, 526	9, 059
<i>Air National Guard</i>					
June 30, 1962-----	50, 319	50, 319	48, 753	1, 566	-----
June 30, 1963-----	74, 325	74, 325	70, 399	3, 926	-----
<i>Air Force Reserve</i>					
June 30, 1962-----	69, 162	58, 444	56, 531	1, 913	10, 718
June 30, 1963-----	67, 666	58, 607	56, 007	2, 600	9, 059
COAST GUARD RESERVE					
June 30, 1962-----	16, 965	16, 202	15, 102	1, 100	763
June 30, 1963-----	18, 919	17, 454	16, 277	1, 177	1, 465

Table 24

RESERVE ACTIVE DUTY BASIC TRAINING PROGRAMS ¹

	Active duty training status	Fiscal year 1962	Fiscal year 1963	Cumulative August 10, 1955 through June 30, 1963
DEPARTMENT OF DEFENSE				
<i>Officers—Total</i>	Entered.....	779	19	36, 031
	Completed..	991	8	31, 755
Army Reserve.....	Entered.....	778	19	35, 731
	Completed..	984	8	31, 480
Air Force Reserve.....	Entered.....	1	-----	300
	Completed..	7	-----	275
<i>Enlisted—Total</i>	Entered.....	92, 462	107, 039	764, 945
	Completed..	84, 653	111, 006	670, 141
Army National Guard..	Entered.....	48, 705	51, 086	345, 427
	Completed..	37, 417	57, 013	297, 559
Army Reserve.....	Entered.....	24, 239	33, 301	277, 313
	Completed..	31, 901	34, 506	250, 087
Naval Reserve.....	Entered.....	1, 534	1, 315	5, 324
	Completed..	1, 236	1, 496	4, 530
Marine Corps Reserve..	Entered.....	9, 207	8, 828	55, 476
	Completed..	6, 072	8, 968	44, 934
Air National Guard....	Entered.....	5, 768	8, 794	58, 597
	Completed..	5, 511	6, 044	53, 214
Air Force Reserve.....	Entered.....	3, 009	3, 715	22, 808
	Completed..	2, 516	2, 979	15, 817
COAST GUARD RESERVE				
<i>Enlisted—Total</i>	Entered.....	2, 180	2, 180	16, 359
	Completed..	2, 395	2, 177	14, 158

¹ Three-to six-month active duty reserve training, including Air National Guard eight-week basic training, under provisions of Section 262 of the Armed Forces Reserve Act of 1952, as amended.

Table 25

MEDICAL CARE IN DEFENSE FACILITIES

	Department of Defense	Army	Navy	Air Force
HOSPITAL ADMISSIONS				
<i>ALL PERSONNEL</i>				
Fiscal Year				
1962-----	1, 199, 150	480, 996	321, 022	397, 132
Fiscal Year				
1963-----	1, 154, 421	450, 419	297, 512	406, 490
<i>Active-Duty Personnel</i>				
Fiscal Year				
1962-----	532, 282	216, 442	165, 935	149, 905
Fiscal Year				
1963-----	491, 733	183, 726	154, 235	153, 772
<i>Dependents & Others</i>				
Fiscal Year				
1962-----	666, 868	264, 544	155, 087	247, 227
Fiscal Year				
1963-----	662, 688	266, 693	143, 277	252, 718
OUTPATIENT VISITS				
<i>ALL PERSONNEL</i>				
Fiscal Year				
1962-----	44, 547, 054	17, 496, 829	12, 456, 629	14, 593, 956
Fiscal Year				
1963-----	45, 269, 604	17, 067, 923	12, 808, 016	15, 393, 665
<i>Active-Duty Personnel</i>				
Fiscal Year				
1962-----	20, 554, 735	8, 356, 406	6, 655, 118	5, 543, 211
Fiscal Year				
1963-----	20, 546, 281	7, 734, 053	6, 994, 518	5, 817, 710
<i>Dependents & Others</i>				
Fiscal Year				
1962-----	23, 992, 319	9, 140, 423	5, 801, 511	9, 050, 385
Fiscal Year				
1963-----	24, 723, 323	9, 333, 870	5, 813, 498	9, 575, 955

Table 26

DEPENDENTS MEDICARE PROGRAM ¹

	Department of Defense	Army	Navy	Air Force
PHYSICIANS' CLAIMS PAID				
<i>Number</i>				
Fiscal Year				
1962-----	386,906	116,632	141,920	128,354
Fiscal Year				
1963-----	380,107	104,974	150,247	124,886
<i>Amount (in Dollars)</i>				
Fiscal Year				
1962-----	29,645,538	8,972,211	10,873,946	9,799,381
Fiscal Year				
1963-----	29,269,212	8,252,682	11,477,617	9,538,913
CIVILIAN HOS- PITAL CLAIMS PAID				
<i>Number</i>				
Fiscal Year				
1962-----	274,781	90,786	95,155	88,840
Fiscal Year				
1963-----	266,509	80,032	100,487	85,990
<i>Amount (in Dollars)</i>				
Fiscal Year				
1962-----	39,549,978	12,698,856	14,222,534	12,628,588
Fiscal Year				
1963-----	40,784,723	12,004,594	15,875,775	12,904,354

¹ As of January 31, 1964. Due to time lag in billings, the above data cannot be considered complete.

Table 27

COST REDUCTION PROGRAM

	Savings realized		Annual savings by FY 1967 from actions initiated FY 1962 through: ¹		
	FY 1963 actual ¹	FY 1964 estimated ¹	FY 1963	FY 1964	FY 1965
TOTAL PROGRAM.....	1, 386	1, 863	² 2, 379	² 3, 446	² 4, 044
BUYING ONLY WHAT WE NEED.....	860	1, 142	1, 093	1, 559	1, 722
Refining Requirements Calculations					
Major Items.....	90	293	106	266	320
Initial Spares.....	163	133	167	144	155
Secondary Items.....	481	670	481	620	564
Technical Manuals.....			6	14	14
Production Base.....	35	13	35	17	16
Technical Data.....		2		23	47
Increased Use of Inventory					
Equipment & Supplies.....		16	164	284	394
Production Equipment.....	1		1	7	13
Contractor Inventory.....	18	1	18	20	20
Value Engineering.....	72	14	72	116	145
Item Reduction.....			43	48	34
BUYING AT LOWEST SOUND PRICE.....	237	176	673	888	1, 067
Shift to Competitive Procurement.....	237	176	237	304	375
Shift from Cost-Plus-Fixed-Fee.....			436	573	668
Breakout.....				11	24
REDUCING OPERATING COSTS.....	289	545	613	999	1, 255
Terminations.....	123	310	336	488	600
Consolidations and Standardizations					
DSA ³	31	38	31	39	54
Departmental.....		7	1	44	101
Increased Efficiency					
DCA & DC System.....	80	119	83	129	66
Traffic Management.....	24	12	24	23	24
Equipment Maintenance.....		28	106	191	289
Noncombat Vehicles.....	2	12	3	12	24
Reduced Contract Technicians.....		9		20	27
Military Housing.....	6	6	6	12	25
Real Property.....	23	3	23	34	38
Packaging.....		1		7	7

¹ Includes one-time savings not expected to recur in future years.

² Goals reported to the Congress "as estimated January 15, 1963" were FY 1963, \$1,894 million; FY 1964, \$2,689 million; and FY 1965, \$3,444 million.

³ Excludes DSA inventory drawdown of \$276 million in fiscal years 1962-63, \$153 million in FY 1964, an \$83 million in FY 1965, a total of \$512 million.

Table 28

PROPERTY HOLDINGS

(Acquisition Cost in Billions of Dollars)

	Department of Defense	Army	Navy	Air Force	Defense agencies
ALL TYPES					
June 30, 1962-----	164.8	36.4	60.4	66.0	2.0
June 30, 1963-----	171.4	35.7	65.2	67.7	2.7
PERSONAL PROPERTY					
June 30, 1962-----	¹ 127.7	25.7	49.9	¹ 50.1	2.0
June 30, 1963-----	¹ 132.6	24.8	54.0	¹ 51.1	2.7
<i>Material in Use</i>					
June 30, 1962-----	73.8	8.7	² 33.1	32.0	(³)
June 30, 1963-----	77.4	7.9	² 35.8	33.7	(³)
<i>In Supply System</i>					
June 30, 1962-----	40.7	13.2	12.6	13.1	1.8
June 30, 1963-----	40.2	12.3	13.8	11.6	2.5
<i>Plant Equipment</i>					
June 30, 1962-----	8.4	3.3	3.1	1.9	0.1
June 30, 1963-----	8.7	3.5	3.2	1.9	0.1
<i>Industrial Funds</i>					
June 30, 1962-----	0.3	0.1	0.2	(³)	(³)
June 30, 1963-----	0.2	(³)	0.2	(³)	(³)
<i>Excess and Surplus</i>					
June 30, 1962-----	⁴ 2.0	¹ 0.3	0.9	0.7	(³)
June 30, 1963-----	3.4	1.1	1.0	1.2	(³)
REAL PROPERTY					
June 30, 1962-----	35.4	10.5	10.0	14.8	-----
June 30, 1963-----	36.6	10.7	10.1	15.7	-----
CONSTRUCTION IN PROGRESS					
June 30, 1962-----	1.8	0.2	0.5	1.1	-----
June 30, 1963-----	2.2	0.2	1.1	0.9	-----

¹ Includes \$2.5 billion for June 30, 1962, and \$2.7 billion for June 30, 1963, not separately itemized, of personal property provided to Air Force contractors from other than the Air Force Supply System Inventories.

² Includes \$1.7 billion for June 30, 1962, and \$2.2 billion for June 30, 1963, of expenditures for work in place on vessels under construction or conversion.

³ Less than \$50 million.

⁴ Excludes Army excess, surplus, and foreign excess property not yet transferred from "Supply System" to "Excess and Surplus."

Table 29

CONTRACT AWARDS BY PROGRAM

(Net in Millions of Dollars)

	Fiscal year 1962		Fiscal year 1963	
	Amount	Percent	Amount	Percent
TOTAL.....	29, 254	100. 0	29, 379	100. 0
MAJOR HARD GOODS.....	19, 403	66. 3	19, 602	66. 7
Aircraft.....	5, 265	18. 0	5, 582	19. 0
Missile Systems.....	6, 849	23. 4	6, 863	23. 4
Ships.....	1, 559	5. 3	1, 750	5. 9
Tank-Automotive.....	1, 119	3. 8	1, 046	3. 6
Weapons.....	224	0. 8	220	0. 7
Ammunition.....	930	3. 2	899	3. 1
Electronics-Communication.....	3, 457	11. 8	3, 242	11. 0
SERVICES.....	1, 826	6. 3	2, 103	7. 2
ALL OTHER.....	8, 025	27. 4	7, 674	26. 1
Subsistence.....	703	2. 4	650	2. 2
Textiles and Clothing.....	423	1. 5	268	0. 9
Fuels and Lubricants.....	1, 261	4. 3	1, 236	4. 2
Miscellaneous Hard Goods.....	1, 321	4. 5	1, 219	4. 1
Construction.....	1, 385	4. 7	1, 287	4. 4
Actions of less than \$10,000.....	2, 932	10. 0	3, 014	10. 3

Table 30

CONTRACT AWARDS BY TYPE OF CONTRACTOR

(Net in Millions of Dollars)

	Department of Defense	Army	Navy	Air Force	Defense agencies ¹
TOTAL					
Fiscal Year 1962-----	29, 254	7, 555	8, 767	11, 769	1, 163
Fiscal Year 1963-----	29, 379	6, 365	8, 235	11, 919	2, 860
INTRAGOVERNMENTAL ²					
Fiscal Year 1962-----	1, 156	407	216	471	62
Fiscal Year 1963-----	347	78	103	145	21
WORK OUTSIDE U.S.					
Fiscal Year 1962-----	1, 454	680	403	275	96
Fiscal Year 1963-----	1, 271	520	152	269	330
EDUCATIONAL & NON-PROFIT INSTITUTIONS					
Fiscal Year 1962-----	497	65	147	285	-----
Fiscal Year 1963-----	618	86	177	316	³ 39
BUSINESS FIRMS FOR WORK IN U.S.					
Fiscal Year 1962-----	26, 147	6, 403	8, 001	10, 738	1, 005
Fiscal Year 1963-----	27, 143	5, 681	7, 803	11, 189	2, 470
<i>Small Business Firms</i>					
Fiscal Year 1962-----	4, 622	1, 761	1, 371	1, 026	464
Fiscal Year 1963-----	4, 301	1, 181	1, 193	978	949
<i>Small Business Percentage</i>					
Fiscal Year 1962-----	17. 7	27. 5	17. 1	9. 6	46. 2
Fiscal Year 1963-----	⁴ 15. 8	20. 8	15. 3	8. 7	38. 4

¹ Data for fiscal years 1962 and 1963 not comparable. 1962 data includes only awards by Defense Supply Agency (DSA) after January 1, 1962, for procurement of common supplies transferred from the military departments. 1963 data includes full-year awards by DSA totaling \$2,670 and awards by other Defense agencies and the Office of the Secretary of Defense totaling \$190 million.

² Data for fiscal years 1962 and 1963 not comparable because effective on July 1, 1963, the definition of "Intragovernmental" was changed to exclude orders executed by the General Services Administration for DOD and by one DOD contracting activity on behalf of another under indefinite quantity contracts.

³ Awards totaled \$53,000.

⁴ Not comparable with fiscal year 1962 because of improved reporting coverage, largely of items for which small concerns were not able to compete successfully. If 1963 were reported on the same basis as 1962, the rate would be 16.5 percent.

Table 31

CONTRACT AWARDS BY PRICING PROVISIONS

(Net in Millions of Dollars)

	Fiscal year 1962		Fiscal year 1963	
	Amount	Percent	Amount	Percent
TOTAL.....	29,254	-----	29,379	-----
Intragovernmental Orders ¹	1,156	-----	347	-----
Actions less than \$10,000 ²	2,319	-----	2,807	-----
TOTAL MINUS SUBTOTALS.....	25,779	100.0	26,225	100.0
FIXED PRICE.....	15,667	60.8	17,013	64.9
Firm.....	9,795	38.0	10,887	41.5
Redeterminable.....	1,898	7.4	981	3.7
Incentive.....	3,097	12.0	4,137	15.8
Escalation.....	877	3.4	1,008	3.9
COST REIMBURSEMENT.....	10,112	39.2	9,212	35.1
No Fee.....	595	2.3	622	2.4
Fixed Fee.....	8,384	32.5	5,439	20.7
Incentive Fee.....	1,061	4.1	3,062	11.7
Time and Materials.....	57	0.2	64	0.2
Labor-Hour.....	15	0.1	25	0.1

¹ Pricing provisions not applicable. Data for fiscal years 1962 and 1963 not comparable because effective July 1, 1962, the definition of "Intragovernmental Orders" was changed to include only direct purchases by the Department of Defense from other Federal agencies, excluding therewith master and other open-end contracts between suppliers and Federal procuring agencies against which Defense procuring offices place orders.

² Data on pricing provisions are not obtained for actions of less than \$10,000.

Table 32

CONTRACT AWARDS BY COMPETITIVE STATUS

(Net in Millions of Dollars)

	Fiscal year 1962		Fiscal year 1963	
	Amount	Percent	Amount	Percent
TOTAL.....	29,254	-----	29,379	-----
Intragovernmental Orders ¹	1,156	-----	347	-----
TOTAL MINUS SUBTOTAL.....	28,098	100.0	29,032	100.0
PRICE COMPETITION.....	10,002	35.6	10,763	37.1
Formally Advertised.....	3,545	12.6	3,678	12.7
Restricted to Small Business and Labor Surplus Areas.....	1,422	5.1	1,382	4.8
Open Market Purchase of \$2,500 or less within U.S. ²	1,069	3.8	1,280	4.4
Other Price Competition ³	3,966	14.1	4,423	15.2
OTHER THAN PRICE COMPETI- TION.....	18,096	64.4	18,269	62.9
Design or Technical Competition.....	1,086	3.9	1,092	3.7
Follow-on Contracts after Price or Design Competition.....	10,458	37.2	9,494	32.7
One-Source Solicitation.....	6,552	23.3	7,683	26.5

¹ Competitive status not applicable. Data for fiscal years 1962 and 1963 not comparable because effective July 1, 1962, the definition of "Intragovernmental Orders" was changed to include only direct purchases by the Department of Defense from other Federal agencies, excluding therewith master and other open-end contracts between suppliers and Federal procuring agencies against which Defense procuring offices place orders.

² Price competition required on actions of \$250 or more and assumed for actions below \$250.

³ Contracts awarded through negotiation after requesting proposals from two or more suppliers.

Table 33

CONTRACT AWARDS BY REGION AND STATE ¹
FISCAL YEAR 1963

	Millions of dollars	Percent of U.S.
NEW ENGLAND.....	2,277	9.0
Maine.....	58	0.2
New Hampshire.....	51	0.2
Vermont.....	12	(²)
Massachusetts.....	1,060	4.2
Rhode Island.....	47	0.2
Connecticut.....	1,048	4.2
MIDDLE ATLANTIC.....	4,639	18.4
New York.....	2,500	9.9
New Jersey.....	1,252	5.0
Pennsylvania.....	887	3.5
SOUTH ATLANTIC.....	2,882	11.4
Delaware.....	67	0.3
Maryland.....	606	2.4
District of Columbia.....	238	0.9
Virginia.....	485	1.9
West Virginia.....	162	0.7
North Carolina.....	259	1.0
South Carolina.....	58	0.2
Georgia.....	423	1.7
Florida.....	583	2.3
SOUTH CENTRAL.....	2,169	8.6
Kentucky.....	56	0.2
Tennessee.....	183	0.7
Alabama.....	195	0.8
Mississippi.....	186	0.7
Arkansas.....	39	0.2
Louisiana.....	195	0.8
Oklahoma.....	111	0.4
Texas.....	1,203	4.8

See footnotes at end of table.

Table 33—Continued

CONTRACT AWARDS BY REGION AND STATE ¹
FISCAL YEAR 1963

	Millions of dollars	Percent of U.S.
EAST NORTH CENTRAL	3,171	12.6
Ohio.....	1,346	5.3
Indiana.....	487	1.9
Illinois.....	486	1.9
Michigan.....	633	2.5
Wisconsin.....	219	0.9
WEST NORTH CENTRAL	1,601	6.3
Minnesota.....	274	1.1
Iowa.....	130	0.5
Missouri.....	686	2.7
North Dakota.....	65	0.3
South Dakota.....	81	0.3
Nebraska.....	34	0.1
Kansas.....	332	1.3
MOUNTAIN	1,426	5.7
Montana.....	79	0.3
Idaho.....	9	(²)
Wyoming.....	125	0.5
Colorado.....	444	1.8
New Mexico.....	62	0.2
Arizona.....	286	1.1
Utah.....	408	1.6
Nevada.....	13	0.1
PACIFIC	6,919	27.4
Washington.....	1,042	4.1
Oregon.....	42	0.2
California.....	5,836	23.1
ALASKA and HAWAII	149	0.6
Alaska.....	103	0.4
Hawaii.....	45	0.2

¹ Includes supply, RDT&E, services, construction, and facility prime contract awards of \$10,000 or more within the United States, totaling \$25,233 million.

² Less than 0.05 percent.

Table 34

DEFENSE-WIDE SUPPLY

	Line items centrally managed	Personnel on board	Net inventory investment (millions of dollars)	Annual sales (millions of dollars)	Annual obligations (millions of dollars)
SUPPLY CENTERS					
June 30, 1962-----	208, 000	13, 649	1, 747	1, 542	1, 556
June 30, 1963-----	1, 029, 000	20, 572	2, 446	1, 639	1, 377
<i>Automotive Supplies</i> ¹					
June 30, 1962-----					
June 30, 1963-----	103, 000	692	89	10	8
<i>Clothing & Textiles</i> ²					
June 30, 1962-----	20, 000	4, 606	1, 145	439	368
June 30, 1963-----	23, 000	4, 020	1, 041	358	218
<i>Construction Supplies</i> ³					
June 30, 1962-----	12, 000	1, 860	8	1	(⁴)
June 30, 1963-----	122, 000	3, 874	109	35	46
<i>Electronics Supplies</i> ⁵					
June 30, 1962-----		433			
June 30, 1963-----	389, 000	4, 292	413	57	40
<i>General Supplies</i> ⁶					
June 30, 1962-----	50, 000	2, 878	125	105	119
June 30, 1963-----	45, 000	2, 691	149	120	105
<i>Industrial Supplies</i> ⁶					
June 30, 1962-----	116, 000	1, 532	132	104	113
June 30, 1963-----	338, 000	2, 448	322	108	85
<i>Medical Supplies</i> ²					
June 30, 1962-----	9, 000	487	221	94	106
June 30, 1963-----	9, 000	608	212	109	69
<i>Petroleum</i> ⁷					
June 30, 1962-----		188			(⁸)
June 30, 1963-----	1, 000	301	10	16	⁹ 16
<i>Subsistence</i> ²					
June 30, 1962-----	1, 000	1, 665	116	800	850
June 30, 1963-----	1, 000	1, 646	102	827	790

¹ Department-wide responsibility for automotive supplies was established on April 13, 1961; center was partially operational during fiscal year 1963 and became fully operational on July 1, 1963.

² Operated as Single Manager agencies until transferred to Defense Supply Agency during the second half of fiscal year 1962.

³ Department-wide responsibility for construction supplies was established on April 13, 1961; center was partially operational during the closing months of fiscal year 1962 and became fully operational on November 1, 1962.

⁴ Less than \$500,000.

⁵ Department-wide responsibility for electronic supplies was established on December 27, 1961; center was partially operational during fiscal year 1963 and is scheduled to become fully operational on April 1, 1964.

⁶ Partially operational as Single Manager agencies when transferred to Defense Supply Agency during the second half of fiscal year 1962.

⁷ The Defense Petroleum Supply Center differs from the other centers in that the military Services retain ownership of their wholesale stocks of petroleum supplies except for packaged petroleum products transferred to DSA ownership on October 1, 1962. DPSC does, however, procure petroleum products, bulk as well as packaged, for the military Services.

⁸ Obligations of Departmental petroleum stock fund divisions totaled \$1,179 million.

⁹ Procurement awards by DPSC for petroleum totaled \$1,182 million.

Table 35

DEFENSE-WIDE TRANSPORTATION SERVICES

	Military Air Transport Service ¹	Military Sea Transportation Service ²	Defense Traffic Management Service ³
PASSENGERS CARRIED			
Fiscal Year 1962-----	1, 171, 000	440, 000	4, 198, 000
Fiscal Year 1963-----	1, 360, 000	412, 000	4, 260, 000
CARGO CARRIED (In Short Tons)			
Fiscal Year 1962-----	182, 000	25, 810, 000	24, 001, 000
Fiscal Year 1963-----	184, 000	25, 613, 000	⁴ 22, 904, 000
<i>Dry Cargo Tonnage</i>			
Fiscal Year 1962-----	182, 000	⁵ 6, 667, 000	9, 338, 000
Fiscal Year 1963-----	184, 000	⁵ 6, 608, 000	⁴ 9, 268, 000
<i>Petroleum Tonnage</i>			
Fiscal Year 1962-----		⁶ 19,143,000	14, 663, 000
Fiscal Year 1963-----		⁶ 19,005,000	13, 636, 000
EXPENSES (In Millions of Dollars)			
Fiscal Year 1962-----	389	425	⁷ 582
Fiscal Year 1963-----	412	444	⁷ ⁸ 598
<i>Payments for Commercial Services</i>			
Fiscal Year 1962-----	185	331	574
Fiscal Year 1963-----	212	341	⁸ 590

¹ Responsible to the Single Manager for Airlift Service, the Secretary of the Air Force.

² Responsible to the Single Manager for Ocean Transportation, the Secretary of the Navy.

³ Established in 1956 as the Military Traffic Management Agency (MTMA) responsible to the Single Manager for Traffic Management within the United States, the Secretary of the Army. Responsibility for this function was assigned to the Director, Defense Supply Agency, on August 31, 1961, and was assumed on January 1, 1962, on which date MTMA was redesignated the Defense Traffic Management Service (DTMS).

⁴ Excludes 137,300 tons of uncrated household goods moved on Government through bills of lading to overseas destinations from the continental United States.

⁵ Reported by MSTs in measurement tons—12,667,000 M.T. in 1962 and 12,555,000 M.T. in 1963—and converted to short tons on an estimated ratio of 1.9 to 1.

⁶ Reported by MSTs in long tons—17,092,000 in 1962 and 16,969,000 in 1963—and converted to short tons on a ratio of 1 to 1.12.

⁷ Includes payments made by the military Services to commercial carriers for transportation and the administrative costs of DMTS.

⁸ Excludes costs of \$98 million for uncrated household goods moved on Government through bills of lading to overseas destinations from the continental United States.

Table 36

FEDERAL CATALOG SYSTEM

	Fiscal year 1962		Fiscal year 1963	
FEDERAL CATALOG				
Number of Items at Beginning of Year-----	3, 914, 120		4, 159, 519	
Number of Items Added---	638, 542		1 689, 652	
Number of Items Deleted---	393, 143		626, 647	
Net Increase-----	245, 399		1 63, 005	
Number of Items at End of Year-----	4, 159, 519		4, 222, 524	
Department of Defense Items-----	3, 966, 214		3, 942, 218	
Other Agency Items-----	193, 305		280, 306	
	June 30, 1962		June 30, 1963	
	Number	Percent	Number	Percent
INTER-SERVICE USE				
Army				
Items in Use-----	1, 038, 895	-----	1, 081, 828	-----
Items Also Used by Other Services-----	426, 846	41. 1	378, 231	35. 0
Navy				
Items in Use-----	1, 240, 276	-----	1, 367, 067	-----
Items Also Used by Other Services-----	283, 919	22. 9	347, 758	25. 4
Marine Corps				
Items in Use-----	278, 362	-----	274, 909	-----
Items Also Used by Other Services-----	179, 863	64. 6	182, 073	66. 2
Air Force				
Items in Use-----	2, 130, 843	-----	1, 866, 785	-----
Items Also Used by Other Services-----	445, 378	20. 9	387, 246	20. 7

¹ Includes 45,859 items added to total through correction and improvement of reporting procedures.

Table 37

MAJOR STORAGE FACILITIES

(In Millions of Square Feet)

	Fiscal year 1962	Fiscal year 1963
COVERED SPACE ¹		
Beginning of Fiscal Year.....	370.0	344.3
Net Reduction.....	-25.7	-6.0
End of Fiscal Year.....	344.3	338.3
OCCUPIED OPEN SPACE ²		
Beginning of Fiscal Year.....	123.3	103.7
Net Reduction.....	-19.6	-7.8
End of Fiscal Year.....	103.7	95.9
CROSS-SERVICING OF COVERED SPACE ¹	9.6	27.0
Among Defense Agencies.....	2.2	19.8
National Stockpile.....	7.2	6.6
Other Government Agencies.....	0.2	0.6
CROSS-SERVICING OF OCCUPIED OPEN SPACE ²	19.1	21.2
Among Defense Agencies.....	0.3	1.6
National Stockpile.....	18.8	19.1
Other Government Agencies.....	(³)	0.5

¹ Includes the gross interior area of buildings used for storage or in support of storage activities.² Includes the open area actually utilized for storage, exclusive of roadways, storage support activities, etc.³ Less than 500,000 square feet.

Table 38

EXCESS AND SURPLUS PROPERTY ¹

(In Millions of Dollars)

	Fiscal year 1962	Fiscal year 1963
GROSS REUTILIZATION AND DISPOSALS ² -----	5, 173	5, 098
REUTILIZATION WITHIN DEPARTMENT OF DEFENSE-----	1, 112	1, 157
Wholesale Inter-Service Supply Support-----	353	420
Intra-Service-----	637	626
Inter-Service-----	122	111
OTHER REUTILIZATION AND DISPOSALS-----	4, 061	3, 941
Military Assistance Program-----	68	11
Reutilization by Other Federal Agencies-----	203	177
Donations-----	258	233
Sold as Usable Property-----	1, 236	892
Designated for Sale as Scrap-----	2, 233	2, 538
Other Dispositions-----	13	16
Destroyed or Abandoned-----	50	74
CASH PROCEEDS REALIZED-----	135	99

¹ Data have been adjusted to conform with new reporting requirements that were prescribed on May 6, 1963, and with audit reports prepared for the Cost Reduction Program. The principal effect of these adjustments was to eliminate intra-Service transfers of property by property officers, amounting to about \$1.1 billion per year in fiscal years 1962 and 1963.

² Does not include disposition of surplus combatant ships—\$145 million and \$193 million, respectively, for fiscal years 1962 and 1963.

Table 39

REAL PROPERTY HOLDINGS

	Department of Defense	Army	Navy	Air Force
ACQUISITION COST (In Millions of Dollars)				
June 30, 1962.....	35,378	10,533	10,025	14,821
June 30, 1963.....	36,565	10,742	10,095	15,727
<i>United States</i>				
June 30, 1962.....	29,681	9,594	8,467	11,620
June 30, 1963.....	30,625	9,716	8,488	12,421
<i>U.S. Possessions</i>				
June 30, 1962.....	1,215	139	745	331
June 30, 1963.....	1,247	144	771	333
<i>Foreign Countries</i>				
June 30, 1962.....	4,482	800	813	2,869
June 30, 1963.....	4,692	882	837	2,973
ACREAGE (In Millions of Acres)				
June 30, 1962.....	30.6	12.2	5.3	13.2
June 30, 1963.....	30.2	12.1	5.4	12.6
BY LOCATION				
<i>United States</i>				
June 30, 1962.....	27.3	11.6	4.8	11.0
June 30, 1963.....	26.8	11.4	4.9	10.4
<i>U.S. Possessions</i>				
June 30, 1962.....	0.2	0.1	0.1	(¹)
June 30, 1963.....	0.2	0.1	0.1	(¹)
<i>Foreign Countries</i>				
June 30, 1962.....	3.1	0.5	0.4	2.2
June 30, 1963.....	3.2	0.6	0.4	2.2
BY TYPE OF CONTROL				
<i>Owned Outright</i>				
June 30, 1962.....	6.9	3.9	1.3	1.8
June 30, 1963.....	6.9	3.9	1.5	1.5
<i>Public Domain & Public Lands</i>				
June 30, 1962.....	16.7	6.1	2.3	8.3
June 30, 1963.....	17.0	6.7	2.3	8.0
<i>Leased, Easements, etc.</i>				
June 30, 1962.....	4.0	1.6	1.3	1.0
June 30, 1963.....	3.2	0.9	1.3	1.0
<i>Foreign Rights</i>				
June 30, 1962.....	3.0	0.5	0.4	2.1
June 30, 1963.....	3.1	0.6	0.4	2.1

¹ Air Force controlled only 40,490 acres in U.S. possessions on June 30, 1962, and 40,553 acres on June 30, 1963.

Table 40

FAMILY HOUSING

	June 30, 1962	June 30, 1963
TOTAL UNITS—MILITARY OWNED & CONTROLLED.....	375, 693	377, 331
<i>Adequate</i>	325, 119	334, 898
Capehart.....	101, 844	111, 540
Wherry (acquired).....	69, 156	71, 187
Leased.....	5, 696	6, 282
Surplus Commodity ¹	9, 404	9, 403
Other Public Quarters.....	123, 507	123, 161
Wherry (privately owned).....	11, 048	8, 420
Rental Guaranty.....	4, 464	4, 905
<i>Inadequate</i>	50, 574	42, 433
UNITS UNDER CONSTRUCTION.....	13, 341	8, 844
Appropriated Funds.....	1, 628	5, 587
Capehart.....	11, 606	3, 257
Surplus Commodity ¹	107	-----

¹ Housing constructed overseas primarily with funds derived from sale of surplus agricultural commodities.

Table 41

MILITARY ASSISTANCE, 1950-63

(In Millions of Dollars)

	Appropriations	Transfers, reimbursements, and rescissions	Available for obligation	Obligations and reservations	Expenditures
TOTAL, 1950-63 ¹ -----	32,902.8	-1,421.8	31,480.9	31,455.2	29,059.3
Fiscal Year 1950-----	1,314.0	0.1	1,314.1	1,101.0	51.7
1951-----	5,222.5	0.9	5,223.4	4,676.9	934.2
1952-----	5,744.0	-476.4	5,267.6	5,591.2	2,385.9
1953-----	4,219.8	-237.9	3,981.9	2,512.1	3,953.1
1954-----	3,230.0	-329.6	2,900.4	2,383.7	3,629.5
1955-----	1,252.7	-478.1	774.6	3,163.2	2,297.3
1956-----	1,022.2	-11.9	1,010.3	848.7	2,620.1
1957-----	2,017.5	-9.7	2,007.8	1,664.5	2,356.3
1958-----	1,340.0	-29.0	1,311.0	1,828.4	2,189.8
1959-----	1,515.0	27.8	1,542.8	1,512.2	2,368.1
1960-----	1,300.0	57.2	1,357.2	1,358.4	1,635.4
1961-----	1,800.0	-6.0	1,794.0	1,786.9	1,466.2
1962-----	1,600.0	-8.4	1,591.5	1,585.4	1,404.6
1963-----	1,325.0	79.2	1,404.2	1,442.7	1,767.2

¹ Includes "Common Use Item" appropriation administered by the Agency for International Development.

Table 42

MILITARY ASSISTANCE OBLIGATIONS AND EXPENDITURES

(In Millions of Dollars)

	Obligations/Reservations		Expenditures	
	FY 1963	FY 1950-63	FY 1963	FY 1950-63
TOTAL ¹	1, 442. 7	31, 455. 2	1, 767. 2	29, 059. 3
BY BUDGET ACTIVITY				
Equipment and Supplies.....	837. 3	24, 724. 4	1, 160. 5	22, 919. 1
Shipping and Related Charges.....	82. 9	1, 588. 3	78. 8	1, 571. 6
Training.....	87. 3	926. 5	103. 4	881. 0
Infrastructure Construction.....	47. 5	930. 4	98. 8	793. 7
Other Military Construction.....	72. 3	459. 9	60. 0	378. 3
Weapons Production Program.....	26. 8	361. 5	82. 4	264. 1
Research and Development.....	- 3. 8	248. 7	13. 2	225. 3
Administration.....	24. 4	372. 4	25. 0	364. 7
Int'l. Military Headquarters.....	12. 4	84. 2	10. 7	74. 4
Credit Financing.....	169. 3	382. 2	42. 5	228. 5
Other Services.....	86. 4	1, 376. 7	92. 0	1, 358. 4
BY AGENCY				
Army.....	596. 2	15, 379. 2	806. 1	14, 525. 6
Navy.....	192. 3	3, 684. 3	198. 3	3, 210. 1
Air Force.....	581. 0	9, 884. 4	630. 1	8, 999. 2
OSD.....	64. 9	1, 350. 3	124. 0	1, 176. 0
Other Agencies.....	8. 2	1, 157. 0	8. 7	1, 148. 4

¹ Includes "Common Use Item" appropriation administered by the Agency for International Development.

MILITARY ASSISTANCE DELIVERIES

Table 43

(In Millions of Dollars)

	Fiscal year 1962	Fiscal year 1963	Fiscal years 1950-63
DELIVERIES UNDER GRANT AID ¹ ...	1, 426. 7	1, 765. 1	27, 973. 5
EUROPE.....	411. 6	391. 9	14, 988. 6
Belgium.....	18. 8	7. 3	1, 189. 6
Denmark.....	15. 0	13. 0	530. 2
France.....	33. 8	8. 0	4, 144. 5
Germany.....	1. 5	. 4	900. 4
Italy.....	83. 7	55. 9	2, 147. 5
Luxembourg.....	(²)	(²)	8. 2
Netherlands.....	12. 8	18. 9	1, 153. 6
Norway.....	24. 9	22. 9	699. 8
Portugal.....	4. 4	8. 7	293. 9
Spain.....	20. 7	26. 5	436. 2
United Kingdom.....	27. 5	11. 6	1, 034. 0
Yugoslavia.....			693. 9
Europe—Area.....	168. 5	218. 7	1, 756. 9
AFRICA.....	18. 1	26. 6	93. 9
Cameroon.....	. 2	(²)	. 2
Congo (Leopoldville).....		. 1	. 1
Dahomey.....	. 1	(²)	. 1
Ethiopia.....	10. 9	10. 9	62. 3
Ghana.....	(²)	(²)	(²)
Ivory Coast.....	. 1	(²)	. 1
Liberia.....	. 4	1. 2	2. 0
Libya.....	1. 3	. 4	4. 4
Mali.....	. 7	. 1	. 9
Niger.....	. 1	(²)	. 1
Nigeria.....	(²)	(²)	(²)
Senegal.....	. 1	1. 6	1. 7
Upper Volta.....	. 1	(²)	. 1
Africa—Area.....	4. 1	12. 2	21. 9
NEAR EAST AND SOUTH ASIA.....	264. 6	408. 2	4, 321. 2
Afghanistan.....	. 6	. 7	2. 3
Greece.....	34. 9	68. 2	1, 038. 0
Iran.....	33. 3	66. 0	551. 9
Iraq.....	(²)	(²)	46. 1
Jordan.....	2. 6	2. 5	20. 6
Lebanon.....	. 2	. 1	8. 4
Turkey.....	156. 4	160. 8	1, 982. 7
Near East & South Asia—Area.....	36. 6	109. 9	671. 1

See footnotes at end of table.

Table 43—Continued

MILITARY ASSISTANCE DELIVERIES

(In Millions of Dollars)

	Fiscal year 1962	Fiscal year 1963	Fiscal years 1950-63
FAR EAST.....	596.3	646.3	7,232.9
Cambodia.....	8.7	9.9	83.2
China, Republic of.....	84.4	76.3	1,951.4
Indochina.....			709.6
Japan.....	74.0	33.9	771.8
Korea.....	136.9	160.4	1,697.5
Philippines.....	20.5	23.7	267.8
Far East—Area.....	271.8	342.2	1,751.6
LATIN AMERICA.....	54.3	51.8	388.8
Argentina.....	1.2	1.0	2.8
Bolivia.....	2.2	2.4	5.4
Brazil.....	19.3	10.0	150.6
Chile.....	7.9	8.0	52.0
Columbia.....	5.8	8.3	39.4
Costa Rica.....	.1	.6	.8
Cuba.....			10.6
Dominican Republic.....	.2	1.9	8.2
Ecuador.....	2.3	2.6	22.2
El Salvador.....	.6	1.0	1.7
Guatemala.....	1.3	2.6	5.3
Haiti.....	.5	.2	3.2
Honduras.....	1.5	(²)	2.6
Jamaica.....		(²)	(²)
Mexico.....	.3	.2	.6
Nicaragua.....	1.0	1.6	4.5
Panama.....	.3	.7	1.1
Paraguay.....	.2	.5	.9
Peru.....	4.6	5.2	41.1
Uruguay.....	3.4	2.1	27.5
Venezuela.....	.5	1.0	1.6
Latin America—Area.....	1.1	1.8	6.9
NONREGIONAL.....	81.8	240.3	948.1

¹ Includes only grant-aid deliveries chargeable to Military Assistance Program appropriations. Additional military materiel and services valued at \$44.7 million were delivered during fiscal year 1963 under the credit assistance provisions of the Foreign Assistance Act, for a total of \$229.5 million in credit assistance since 1950. Furthermore, military weapons, equipment, and supplies excess to U.S. needs and valued at acquisition costs of \$188.5 million were delivered to grant-aid countries during the year without charge to MAP appropriations except for rehabilitation and transportation costs, bringing total deliveries of excess stocks to \$2,468.9 million since 1950.

² Less than \$50,000.

INDEX

	Page
Advanced Research Projects Agency (ARPA)	17, 29
Aeronautics and Astronautics Coordinating Board	29
Agency for International Development (AID)	177, 191
Aircraft (<i>see also</i> Air defense, Aircraft inventory, General purpose forces, Research and development, and Strategic forces)	5,
13, 15, 23, 24, 25, 160, 161, 207, 208, 209, 210, 211, 248, 249, 250, 269, 283, 288, 289, 296, 297, 298.	
Attack aircraft and bombers :	
A-4 (Skyhawk)	23, 207
A-5 (Vigilante)	23, 208
A-6 (Intruder)	208
B-47 (Stratojet)	13, 15, 248, 249, 250, 310
B-52 (Stratofortress)	5, 13, 15, 244, 248, 249, 283, 297, 308
Project STRAIGHT PIN	248
B-58 (Hustler)	13, 15, 244, 248, 297
XB-70 (Valkyrie)	15, 244, 283, 305, 311
Fighters :	
F-4 (Phantom II)	23, 24, 209, 252, 285, 297, 305, 308
F-5 (Freedom Fighter)	297
F-84 (Thunderstreak)	24, 269
F-101 (Voodoo)	16, 251
F-102 (Delta Dagger)	16, 251, 269
F-104 (Starfighter)	16, 269, 298
F-105 (Thunderchief)	252, 285, 297
F-106 (Delta Dart)	16, 251
F-111 (TFX)	23, 24, 209, 305
Patrol, warning, and antisubmarine :	
DASH	206
P-2 (Neptune)	207
P-3A (Orion)	207
P-5 (Marlin)	207
S-2E (Tracker)	207
SH-3A (Sea King)	207
Tactical support, trainers, and miscellaneous :	
CH-3	297
CH-21 (Shawnee)	111
CH-37 (Mojave)	208
CH-46 (Seaknight)	208
CH-47 (Chinook)	126, 148, 161
CH-53	161, 208
HH-43 (Huskie)	297
OV-1 (Mohawk)	111, 148
T-28 (Trojan)	111, 264
T-29 (Flying Classroom)	297
T-37	297

Aircraft—Continued

Research and development—Continued

Tactical support, trainers, and miscellaneous—Continued

	Page
T-38 (Talon)	297
T-39 (Sabreliner)	211, 297
U-1 (Otter)	111
UH-1 (Iroquois)	111, 148, 149, 161, 208
UH-2 (Seasprite)	210
YCH-54 (S-64)	161
Transports and tankers:	
C-54 (Skymaster)	275
C-97 (Stratofreighter)	25, 269
C-118 (Liftmaster)	275
C-119 (Flying Boxcar)	25, 269
C-121 (Super Constellation)	269
C-123 (Provider)	269
C-124 (Globemaster)	25, 244, 256, 269
C-130 (Hercules)	25, 244, 247
C-131 (Samaritan)	275
C-135 (Stratolifter)	25, 247, 275, 287, 297
C-140 (Jet Star)	297
C-141 (Starlifter)	25, 244, 297, 305, 311
CV-2 (Caribou)	111, 126, 148, 161
CV-7 (Caribou II)	161
KB-50 (Superfortress)	249
KC-97 (Stratofreighter)	249
KC-135 (Stratotanker)	13, 249, 297
Aircraft inventory	126, 302, 306, 318
Air defense (<i>see also</i> Missile systems)	15-17, 18, 116, 250, 251, 252, 319
Ballistic Missile Early Warning System (BMEWS)	15,
	17, 250, 251, 252, 278, 279, 298
Control and Warning Systems	251, 252
Airborne Long-Range Input (ALRI)	252
Back-Up Interceptor Control (BUIC)	16, 252, 278, 298
Bomb-Alarm System	17
Distant Early Warning (DEW) line	16, 250, 251, 279
Nuclear Detection and Reporting System (NUDETS)	17
Semi-Automatic Ground Environment (SAGE)	15, 16, 250, 251
Texas Towers	278
NIKE X development	17, 18
North American Air Defense Command	15, 116
Air Defense Command (ADC)	251, 254, 256, 268, 269, 301, 307
Army Defense Command	116, 141
Space Detection and Tracking System (SPADATS)	15, 250
Air Force (<i>see also</i> Aircraft, Air defense, Communications, General purpose forces, Logistics, Military personnel, Research and development, Reserve forces, Space programs, and Strategic forces).	
Air Force Systems Command (AFSC)	307
Command and control systems	243, 248, 307
Inspector General activities	307, 308
Legal services	276
Major forces	318
Management	305, 306

Air Force—Continued	Page
Procurement policy	295, 296
Security programs	309, 310
Directorate of Special Investigations	309
Air Force Academy	266
Airlift and sealift (<i>see also</i> Logistics—Transportation)	25,
	26, 218, 243, 244, 247, 254, 269
Air Photographic and Charting Service (APCS)	257
Air Rescue Service (ARS)	257
Air Weather Service (AWS)	257
Alaska	163
Alaska Communications System	256
Alaskan Air Command (AAC)	251
Algeria	117
American Hospital Association	274
Antarctica	126, 163
Operation DEEP FREEZE	255
Antisubmarine warfare (ASW) (<i>see also</i> Research and development, Weapons and equipment)	9, 23, 190
Army (<i>see also</i> Air Defense, Communications, General purpose forces, Logistics, Military personnel, Research and development, Reserve forces, Space programs, and Weapons and equipment)	
Aviation	126, 127
U.S. Army Tactical Mobility Requirements Board (Howze Board)	22, 126
Civic action programs and units	178, 179
Civil Affairs	172–176
Administration of the Panama Canal	172, 173
Administration of the Ryukyu Islands	173, 174–175
Major forces	318
Management	141, 142, 143
Automated information system (AUTOPROBE)	142, 143
Program Evaluation and Review Technique (PERT)	143
Public works program	167–171
Reorganization	119–124
Army divisions and reserve components	105
Staff and major commands structure	119–121
Reorganization Objective Army Divisions (ROAD)	27,
	105, 107, 108, 122, 123, 126, 180
Support of civil authority	116
Support services	155
Army Combat Developments Command (CONARC)	121
Atomic Energy Commission (AEC)	9, 29, 54, 163, 308, 328
Auditing and management	35, 36, 231, 313, 314
Australia-New Zealand-United States (ANZUS) Pact	51
Balance in international payments	53, 54, 55, 146, 307, 328
Belgium	210
Berlin crisis	26, 28, 105, 107, 114, 122, 132, 155, 180, 246, 259, 269, 318, 319
Bermuda	250
Bolivia	118, 255
Brazil	131

	Page
Budget and budgeting (<i>see also</i> Auditing and management, Stock and industrial funds).....	34, 35, 36, 143-146, 147, 188, 189, 277, 278, 311-314, 320
Budget for fiscal year 1962.....	320
Expenditures.....	320
New obligatory authority.....	320
Obligations.....	322-323
Total obligatory authority.....	320
Budget for fiscal year 1963.....	320
Expenditures.....	324-325
New obligatory authority.....	144, 320
New obligatory availability.....	321
Obligations.....	322-323
Total obligatory authority.....	320
Budget for fiscal year 1964.....	320
New obligatory authority.....	320
New obligatory availability.....	326
Total obligatory authority.....	320
Civil defense.....	99, 101-102
Defense Supply Agency (DSA).....	76, 77, 78
Expenditures for military space programs.....	28
Military Assistance Program (MAP).....	328, 361-364
Reductions in working capital funds, fiscal years 1953-63.....	327
Research, development, test, and evaluation programs.....	34, 36, 37, 145, 156, 245, 282, 329
Bureau of Naval Weapons.....	210
Burma.....	108
Burundi.....	117
Cambodia.....	108
Canada.....	157, 250, 301
Canal Zone.....	135, 136, 137, 142
Central Treaty Organization (CENTO).....	51, 195
Chile.....	256
China, Republic of.....	51, 115
Civil Aeronautics Board.....	254
Civil defense.....	18, 19, 20, 87-102, 116, 117
Joint Civil Defense Support Group.....	116
Nationwide fallout shelter system.....	18, 19, 88, 89-90, 91
Office of Civil Defense.....	20, 116
Organization.....	98, 99
Protective Structures, Development Center.....	117
Research.....	95
Supplies.....	83
Civilian personnel.....	41, 42, 139, 140, 228, 262, 263, 337, 338, 339
Air Force awards.....	263
Career programs.....	140
Defense Supply Agency.....	78, 79
Scientific.....	229, 262
Civil Service Commission.....	262, 263
Civil Reserve Air Fleet (CRAF).....	26, 255, 308
Civil works. (<i>See</i> Army—Public works program.)	

	Page
Collective security.....	50-56, 177, 298, 299, 328, 361-364
Deployment of armed forces overseas.....	51, 52
Development of British POLARIS force.....	51
Military Assistance Program (MAP).....	52,
177, 264, 267, 297, 298, 299, 328, 361-364	
Sales program.....	177
Training programs.....	53, 177, 178
Colombia.....	118
Communications (<i>see also</i> Research and development, Weapons and equipment).....	12, 148, 165, 216, 287, 288
Air Force.....	256, 257, 300, 301
Automatic Digital Network (AUTODIN).....	216, 257, 301
Civil defense.....	92
Communications Satellite Corporation.....	29
Communist China.....	180
Congo.....	55, 255, 256
Construction (<i>see also</i> Army—Public works program).....	138, 197, 211, 212, 360
Air Force.....	277-280
Army.....	138, 153, 154
Navy.....	211, 212
Continental Air Command (CONAC).....	255, 256
Continental Army Command (CONARC).....	5, 11, 121, 142
Cost reduction program. (<i>See</i> Logistics.)	
Counterinsurgency and counter guerrilla activities. (<i>See</i> General purpose forces, Military personnel—Training, and Research and development.)	
Cuban crisis.....	3,
4-7, 8, 26, 73, 82, 111, 112-113, 114, 132, 190, 191, 205, 216, 243, 251, 252, 255, 259, 268, 303.	
Defense Atomic Support Agency (DASA).....	11
Defense Communications Agency (DCA).....	12, 20, 49, 257, 286, 301
Defense Communications System.....	165
Defense Documentation Center for Scientific and Technical Information (DDC).....	38
Defense Industrial Advisory Council.....	50
Defense Intelligence Agency (DIA).....	12, 117
Defense Supply Agency (DSA) (<i>see also</i> Budget and budgeting, Military personnel).....	20, 38, 45, 48, 73-85, 225, 274, 300, 301
Assumption of item management responsibilities.....	73, 74
Cost reduction program.....	84, 85
Defense-wide services.....	80, 81-82, 83
Distribution system.....	74, 75
Inventories.....	74
Materiel management systems.....	79, 80
Organization, direction, and control.....	76
Procurement program.....	79
Stock fund data.....	77
Supply centers.....	74
Supply effectiveness.....	83, 84
Defense Traffic Management Service (DTMS).....	49, 82

Department of Defense :	Page
Management	31
Operational direction	11-12
Organization	31, 32
Planning-Programing-Budgeting	32, 33-35, 36
Policies and programs	3
Dominican Republic	115
Ecuador	118
Education (<i>see also</i> Military personnel—Training).	
Dependents	137, 138, 206
Egypt	131
Ethiopia	118
Family housing. (<i>See</i> Construction, Installations.)	
Federal Aviation Agency (FAA)	160, 175, 309
Federal Bureau of Investigation (FBI)	310
Federal Food and Drug Administration	158
France	194, 206, 210, 275
General purpose forces (<i>see also</i> Missile systems, Weapons and equip- ment)	5, 20-25, 26, 108, 109, 127, 128, 247, 252, 253, 254, 319
Air Force	24-25, 243, 252-254
Pacific Air Force (PACAF)	251, 252-253
Tactical Air Command (TAC)	5, 246, 249, 252, 253, 254, 255, 256, 297
U.S. Air Forces in Europe (USAFE)	251, 252, 253, 255, 256
Air-ground amphibious	191
Army	5, 6, 21-22, 107-109, 122, 127-128
Army forces, Alaska (USARAL)	108, 141
Army forces, Atlantic	5, 6, 111-113
Army forces, Europe (USAREUR)	107, 114
Army forces, Pacific (USARPAC)	107-108
Army forces, Southern Command (USARSOUTHCOM)	108, 115, 141
Strategic Army Force (STRAF)	109
Strategic Army Corps (STRAC)	6, 109
Counterinsurgency, counter guerrilla, and special warfare	9, 127-128, 202, 247, 253
Marine Corps	23-24, 185-191, 192, 216-217, 238-239, 318, 319
Navy	22-24, 185-186, 197
Strike Command (USSTRICOM)	11, 244, 252, 253-254, 269
Air Force Strike Command (AFSTRIKE)	252, 253
General Services Administration (GSA)	83, 303
Germany, Federal Republic of	51, 55, 114, 208, 210, 217, 247, 275, 328
Greece	52, 114, 275
Greenland	118, 157, 163, 278
Guam	193-194, 255, 256
Guantanamo	4, 5, 190, 205, 255
Haiti	115
Hawaii	107, 170, 303

	Page
Health, welfare, and medicine (<i>see also</i> Military personnel, Research and development)	138-139, 271-276
Aeromedical evacuation	275
Aerospace medicine	275, 292-293
Air Force Veterinary Service	274
Chaplains and religious facilities	139, 275-276
Dependents' Medicare program	139, 272, 345
Hospitals and dental facilities	138, 274
Medical and dental service	138, 271-272
Medical care in Defense facilities	272, 344
Safety programs	205, 308-309
India	52, 114, 115, 180, 247, 255
Installations (<i>see also</i> Construction)	153-154, 211-213, 277-281, 359-360
Base maintenance	152-153, 212-213, 281
Family housing	40-41, 154, 205, 280, 360
Missile ranges	213, 282
Real property holdings	154, 279, 359
Intelligence (<i>see also</i> Defense Intelligence Agency) ..	11-12, 117-118, 190, 243, 246
Army Intelligence and Security Branch	117
Defense Intelligence School	12
Intercontinental Ballistic Missiles (ICBM). (<i>See</i> Missile systems, Research and development, and Strategic forces.)	
Iran	51, 256
Italy	107, 210, 248, 275, 309, 328
Jamaica	117
Japan	51, 108, 175, 206
Joint Chiefs of Staff (JCS)	5, 11, 31, 84, 165, 247, 338
Korea, Republic of	51, 105, 108, 157, 180, 195
Laos	114
Legislative references:	
Armed Forces Reserve Act of 1952 (Public Law 305, 84th Cong., as amended)	343
Buy American Act (Public Law 428, 72d Cong.)	54
Communications Satellite Act of 1962 (Public Law 87-624)	29
Department of Defense Appropriation Act, 1963 (Public Law 88-149)	312, 326
Federal Civil Defense Act of 1950 (Public Law 920, 81st Cong.)	89
Federal Salary Reform Act of 1962 (Public Law 87-793)	41, 263
Foreign Assistance Act of 1961 (Public Law 87-195)	298
Independent Offices Appropriation Act, 1963 (Public Law 88-215)	326
Military Construction Appropriation Act, 1963 (Public Law 88-220) ..	312, 326
Military Pay Act of 1958 (Public Law 85-422)	39
National Defense Facilities Act of 1950 (Public Law 783, 81st Cong.) ..	63
Reserve Officers' Personnel Act (ROPA) of 1954 (Public Law 773, 83d Cong.)	60
Supplemental Appropriation Act, 1963 (Public Law 88-25)	312
Uniformed Services Pay Act of 1963 (Public Law 88-132)	38, 40
Universal Military Training and Service Act, "Selective Service Act" (Public Law 116, 84th Cong., as amended by Public Law 86-4)	41, 273
Vinson-Trammell Act (Public Law 135, 73d Cong.)	232

	Page
Libya	256
Logistics (<i>see also</i> Communications, Defense Supply Agency, and installations)	43-50, 147-155, 211-218, 222-223, 224-227, 294-304, 346-360
Army Materiel Command	120-121, 134, 152, 153
Cost reduction program	44-49, 84-85, 149-150, 226, 300, 302, 306-307, 346
Improved operating procedures	47-49
Inventory reductions	45, 224-226, 300-302, 346
Value engineering	45, 149
Maintenance of equipment	49, 151-152, 214-217, 302-303
Mobile support, Navy	215-216
Procurement and production	21-22, 45-47, 147-149, 150, 151-152, 222-223, 233, 294-298
Aircraft and missile production	147, 149, 206-211, 296-298
Contract awards	45-47, 222-223, 237, 348-353
Industrial plant equipment	75, 233, 294
Labor surplus areas	47, 237
Production facilities	294-295
Small business	47, 79, 148, 233, 234-235, 296, 349
Supply management	48, 73-75, 79-84, 153, 224, 225-227, 300-302
Excess and surplus property	81-82, 225-226, 301-302, 358
Federal Catalog System	81, 216, 356
Fleet Oriented Consolidated Stock List (FOCSL)	216
Inventories	74, 347
Marine Corps material readiness	216-217
Military Standard Requisitioning and Issue Procedures (MILSTRIP)	48, 80, 82-83, 84, 153, 216
Military Standard Transportation and Movement Procedures (MILSTAMP)	48, 83, 153
Storage and distribution	75-76, 153, 357
Transportation (<i>see also</i> Airlift and sealift)	49, 82, 154-155, 217-218, 254-256, 303-304, 355
Commercial augmentation	26, 217, 254, 303-304, 355
LOGAIR	254, 255, 303
QUICKTRANS	218, 254, 255
Utilization of U.S.-flag vessels	233
Logistics Management Institute	50
Logistics Studies Information Exchange	50
Manpower policies	38, 41, 42-43, 132, 134, 137-138, 139-140, 228-230, 259-260, 263, 228-230
Equality of treatment and opportunity	42-43, 107-109, 110, 139, 235-236, 263
President's Committee on Equal Opportunity in the Armed Forces (Gesell Committee)	42-43, 236, 263
President's Equal Employment Opportunity Program	235
Labor-management relations	140, 263
Standards of ethical conduct	42
Marine Corps. (<i>See</i> General purpose forces and Reserve forces.)	
Military Air Transport Service (MATS)	49, 191, 244, 247, 254-256, 268, 269, 297, 303, 307, 355
Military Assistance Advisory Groups (MAAG)	108, 128
Military Assistance Program. (<i>See</i> Collective security.)	

	Page
Military personnel.....	11,
21, 22, 23, 38-41, 132-139, 200-203, 229-230, 259-262, 300-336, 338, 344-345	
Active duty strength.....	11, 21, 107, 132, 189, 318, 330-331
Deployment.....	52, 107-109, 331
Defense Supply Agency.....	78-79
Dependents (<i>see also</i> Education).....	205, 256, 335, 344-345
Enlisted.....	132, 134, 200-201, 202-203, 261, 330, 332, 333-334, 336
Recruitment and reenlistment programs.....	35,
36, 41, 134, 200-201, 202-203, 333-334	
Increases in pay and allowances.....	16, 17, 38-40, 259
Medical and dental.....	133, 272-274
Missile.....	203
Officers.....	130, 132-134, 200-201, 260-261, 330, 332, 336
Aviators.....	126, 260-261
Procurement.....	133, 201
ROTC program.....	72, 130, 266
Requirements planning.....	229-230
Training.....	129-130, 201-202, 203-204, 264-268
Army school programs.....	129-130
Aviation.....	264
Counterinsurgency.....	127-128, 202, 265-266
Exercises.....	194-195, 253-254, 255
Military Assistance Training Adviser (MATA) course.....	128
Naval Postgraduate School.....	201
Navy correspondence courses.....	203
Navy facilities.....	204
Professional education, Air Force.....	266-268
Foreign languages.....	267-268
Royal Canadian Air Force physical conditioning manual.....	265
Utilization.....	228-230, 260, 262
Women's components.....	135-136, 261-262, 336
Military Sea Transportation Service (MSTS).....	26, 49, 217, 232, 355
Missile systems (<i>see also</i> Air defense, General purpose forces, Research and development, and Strategic forces):	
Air defense:	
BOMARC-A.....	16-17, 308
BOMARC-B.....	16-17, 251
FALCON.....	251, 253
HAWK.....	5, 16, 113, 116, 160
MAULER.....	160
NIKE-AJAX.....	16, 62, 82, 116
NIKE-HERCULES.....	5, 16, 62, 108, 113, 116, 160
NIKE X.....	17, 18, 160
NIKE-ZEUS.....	17, 160
PHOENIX.....	209
REDEYE.....	160
SIDEWINDER.....	209
SPARROW.....	209, 253
SPRINT.....	17
TALOS.....	23, 211
TARTAR.....	23, 211
TERRIER.....	23, 211
TYPHON.....	211

Missile systems—Continued

Page

Strategic:

ATLAS	13, 160, 243, 245, 249, 277, 281, 283, 284, 286, 305, 308, 309, 314
HOUND DOG	13, 249, 296
JUPITER	248
MINUTEMAN	13, 14, 243, 249, 267, 272, 277, 283-284, 296, 305, 306, 309
POLARIS	5, 9, 12, 13, 14, 51, 188, 212, 216, 217, 218, 220, 230
SKYBOLT	13, 284, 314
THOR	248, 286, 291
TITAN	13, 160, 243, 245, 249-250, 277-278, 283, 296, 305, 309, 314

Tactical:

BULLPUP	25, 207, 208, 253, 285, 296-297
CORPORAL	22, 162
LACROSSE	161
LANCE	161
MACE	253
PERSHING	22, 149, 162
REDSTONE	22, 162
SERGEANT	22, 161-162
SHILLELAGH	164
SHRIKE	207, 209, 253
WALLEYE	209

Morocco	55, 250, 256, 274
---------	-------------------

National Aeronautics and Space Administration (NASA)	29, 30, 193, 154, 166, 245, 282, 286, 291
--	---

National Aeronautics and Space Council	29
--	----

National Board for the Promotion of Rifle Practice (NBPRP)	130-131
--	---------

National Defense Reserve Fleet	118
--------------------------------	-----

National Emergency Airborne Command Post (NEACP)	248
--	-----

National Institute of Public Affairs	140
--------------------------------------	-----

National Labor Relations Board (NLRB)	234
---------------------------------------	-----

National Military Command System	12
----------------------------------	----

National Naval Medical Center	224
-------------------------------	-----

National Search and Rescue Plan	258
---------------------------------	-----

Naval Academy (USNA)	195, 266, 267
----------------------	---------------

Navy (*see also* Aircraft, Air defense, Military personnel, Missile systems, Research and development, Reserve forces, Ships, Space programs, Strategic forces, and Weapons and equipment).

Atlantic Fleet Weapons Range (AFWR)	213
-------------------------------------	-----

Major forces	318
--------------	-----

Management	221-231
------------	---------

Operational activities	190-192, 194-196
------------------------	------------------

People-to-People Program	195-196
--------------------------	---------

Project HANDCLASP	196
-------------------	-----

Programs and expenditures	22-24, 188-189, 320, 325
---------------------------	--------------------------

Shipbuilding and conversion programs	24, 197-198
--------------------------------------	-------------

Private and naval shipyards	232
-----------------------------	-----

Netherlands	210
-------------	-----

New Zealand	256
-------------	-----

North American Air Defense Command (NORAD)	5, 15, 16, 91, 250, 279
--	-------------------------

North Atlantic Treaty Organization (NATO)	14, 15,
---	---------

	52, 107, 180, 194, 210, 217, 248, 299, 328
--	--

Nuclear testing. (*See* Research and development.)

Oceanography. (See Research and development.)	Page
Office of Civil Defense (OCD). (See Civil defense.)	
Office of Emergency Planning (OEP)	99, 170, 171
Okinawa (see also Ryukyu Islands)	173-174
Organization of American States (OAS)	4, 51
 Pakistan	51, 195, 256
Panama (see also Canal Zone)	118, 157, 172, 256
Philippines	51, 206, 108, 118
Portugal	194
President Kennedy	4, 6, 8, 10, 34, 37, 41, 42, 43, 112, 174, 243, 246, 259, 314
Executive Order 10925	139, 296
Executive Order 10988	140, 263
Executive Order 11053	116
Executive Order 11111	116
Proclamation 3504	4
Puerto Rico	108, 191, 204
 Research and development (see also Budget and budgeting, Ships, and Space programs)	36-38, 96, 156-166, 218-220, 245, 282-293
Aeronautical research and aircraft	159, 160-161, 282-283, 284, 285, 288-289, 290
C-141	284
Engine development	289-290
F-5A/B	285
F-111A (TFX), RF-111A	285
LOH (light observation helicopter)	160-161
X-15	30, 288-289
X-19	289
X-21A	288
XB-70	15, 283, 288
XC-142	289
Antisubmarine warfare (ASW)	9, 23, 190
Bell Report	37
Command and control systems	166, 287-288
Counterinsurgency and limited war	157-158, 166
Earth and environmental sciences	156-157, 219
Astronomy	292
Climatology and meteorology	157, 218, 291-292
Oceanography	23, 69, 71, 197, 218, 219
Terrain studies	157
Upper atmosphere studies	157, 291-292
Electronics and communications	165-166, 220, 287-288
Long-range	165-166
Nuclear Detonation and Reporting System (NUDETS)	287
Tactical	165
Life sciences	138, 158
Food preservation	158
Medical research	138, 158, 165, 275, 292-293
Psychological research	157-158, 219, 220
Management of programs	36-38, 156, 157, 159, 219, 229, 282-283
Scientific and technical information	38, 159

Research and development—Continued		Page
Missiles, rockets, and missile defense systems	160, 161-163, 164, 208-210, 211, 283-284, 285	17,
Air defense	160, 208-209, 211, 284-285	
Antitank assault weapon system (TOW)		164
Guidance		162
Instrumentation		288
Medium Range Ballistic Missile (MRBM)	14, 285, 305	
Multifunction Array Radar (MAR)		17
Project DEFENDER		17
Propulsion and propellants	162, 219-220, 289-290	
Strategic		283-284
Tactical		285
Nuclear developments:		
Powerplants		163
Testing	9-10, 163-164	
VELA Program		29
Operations research		157-158
Physical sciences	158-159, 219-220	
Hydrodynamics		220
Materials	158-159, 218, 219, 290	
Structural mechanics		220
Scientific personnel	38, 229, 262	
Ships and small craft	22, 198-200	
Weapons, equipment, and tactics	160-161, 164-166	
Aircraft armament systems	208-209, 284-285	
Chemical and biological weapons and defense		165
Combat vehicles	164, 165	
Howitzers		164
LASER rangefinder (XM-23)		164
Suppressive fire-support systems		161
Surveillance		166
Reserve forces	3, 26-28, 59-72, 120, 122-124, 204, 268-270, 340-343	
Active-duty-for-training program		28, 60
Air Force	25, 26, 28, 69-71, 246, 268-270	
Air Force Reserve (AFR)		70-71, 268-270
Air National Guard	25, 28, 43, 69-70, 268-270	
Army	26-28, 61-65, 122-124	
Army Reserve (USAR)	6, 26-28, 63-65, 122-124	
National Guard (ARNGUS)	6, 26-28, 43, 61-63, 122-124	
Strength level		27-28, 340-343
Ready Reserve Mobilization Reinforcement Pool (RRMRP)		124
Ready Reserve Strategic Army Force		122
Reorganization	26-28, 122-124	
Board policy considerations		59
Coast Guard	71-72, 340-343	
Marine Corps Reserve	28, 67-69, 204, 340-343	
Naval Reserve	65-67, 204, 340-343	
Reserve Officers' Training Corps (ROTC)	72, 120, 130, 201, 266	
Strength level		340-342
Reserve Forces Policy Board (RFPB)		59-72

Rockets :

	Page
Antisubmarine (ASROC)	9, 206
ASTROBEE	292
BLACK BRANT	292
BLUE SCOUT	289
DAVY CROCKETT	147
HONEST JOHN	161
JAVELIN	292
LITTLE JOHN	161
NIKE-CAJUN	292
ZUNI	211
Ryukyu Islands	108, 173-175

Satellites (see also Space programs)

	192
ANNA	29, 192, 257, 291

Ships :

Aircraft carriers :

<i>Constellation</i>	23
<i>Enterprise</i>	23
<i>Forrestal</i>	5, 23, 208
<i>Independence</i>	6, 208
<i>Kitty Hawk</i>	23

Amphibious

<i>Raleigh</i>	197
----------------------	-----

Attack submarines

	197, 199-200
<i>Jack</i>	199
<i>Plunger</i>	197
<i>Thresher</i>	199

Auxiliaries and research vessels :

<i>Davis</i>	197
<i>General H. H. Arnold</i>	288
<i>General Hoyt S. Vandenberg</i>	288
<i>Hunley</i>	197
<i>J. N. Gillis</i>	197
<i>Mars</i>	215
<i>Norton Sound</i>	211
<i>R. D. Conrad</i>	197

Cruisers :

<i>Long Beach</i>	23
-------------------------	----

Destroyers and frigates :

<i>Bainbridge</i>	23, 197
<i>Barney</i>	197
<i>Berkeley</i>	197
<i>Bronstein</i>	197
<i>Hoel</i>	197
<i>Leahy</i>	197
<i>Semmes</i>	197
<i>Strauss</i>	197
<i>Tattnall</i>	197
<i>Yarnell</i>	197

Experimental submarines

	200
<i>Albacore</i>	200
<i>Dolphin</i>	200

Ships—Continued	Page
Fleet Ballistic Missile (FBM) submarines	14
<i>Alexander Hamilton</i>	197
<i>Lafayette</i>	197
<i>Thomas Jefferson</i>	197
Southeast Asia	158
Southeast Asia Treaty Organization (SEATO)	51, 115, 195
Space programs (<i>see also</i> Satellites)	28-30,
192-193, 282, 283, 285-287, 288, 290-293	
Boosters	30, 282, 285-286
THOR	286, 291
THOR-AGENA	286
TITAN III	30, 278, 282, 285, 305
Communications	29, 166, 286, 288
Synchronous-altitude communications satellite (SYNCOM)	
program	29, 166
Project WEST FORD	29, 288
Manned spacecraft:	
AMU (Astronaut Maneuvering Unit)	286-287
Dyna-Soar (X-20)	30, 305, 311
Project GEMINI	29, 30, 245, 282, 287
Project MERCURY	29, 192, 245
Naval Space Surveillance System (NAVSPASUR)	192
Spacecraft subsystems	290
SNAP-50/SPUR	290
Spain	275
Special Warfare Center	128
Stock and industrial funds	144, 146, 188, 189, 225, 327
Strategic Air Command (SAC)	4,
5, 244, 246, 248-250, 256, 264, 268, 278, 287, 296, 310	
Strategic Army Corps (STRAC). (<i>See</i> General purpose forces.)	
Strategic forces (<i>see also</i> Aircraft, Missile systems)	12-15, 248-250, 319
Aircraft	13, 15, 244-245, 248-249, 250
Intercontinental ballistic missiles (ICBM)	12-13,
14, 244-245, 249-250, 277-278, 283-284	
Missile systems	249
Strike Command (USSTRICOM). (<i>See</i> General purpose forces.)	
Sudan	118
Supreme Allied Command, Atlantic (SACLANT)	194
Supreme Allied Command, Europe (SACEUR)	51
Tactical Air Command (TAC). (<i>See</i> General purpose forces.)	
Taiwan	108
Tanganyika	256
Thailand	108, 114, 115, 192, 195
Training. (<i>See</i> Military personnel.)	
Turkey	51, 230, 248, 275
Union of Soviet Socialist Republics (U.S.S.R.)	3, 4, 5, 6, 7, 9, 10, 111, 190, 243, 246
United Kingdom	51, 194, 210, 248, 275, 278
United Nations (U.N.)	7, 255, 256
U.S. Court of Military Appeals	276, 339
U.S. National Military Command System	12, 305

	Page
Vietnam.....	8, 9, 39,
105, 108, 109-111, 113, 118, 125, 126, 128, 161, 180, 191-192, 247, 264, 298	
Self Defense Corps.....	110
Venezuela.....	255
Weapons and equipment (<i>see also</i> Aircraft, Missile systems, Research and development, and Rockets).	
Amphibious craft and vehicles.....	149, 198
DUKW.....	149
LARC-V.....	149
Antisubmarine weapons.....	9, 190, 206-207
Aircraft systems.....	207
Submarine systems.....	206
MK-45 antisubmarine torpedo (ASTOR).....	206
MK 57-O, submarine-launched, moored mine.....	206-207
Submerged-launched rocket weapon (SUBROC).....	206
Surface ship systems.....	206
ASROC (antisubmarine rocket).....	206
DASH.....	206
Artillery and artillery fire control.....	147, 149, 164
Howitzers:	
M-108 and M-109.....	164
XM-102 and XM-104.....	164
M-67, 90-mm. recoilless rifle.....	149
Combat and logistical vehicles.....	113, 147, 148, 165
GOER, all-terrain vehicle.....	165
M-59 personnel carrier.....	113, 158
M-60A1 tank.....	147
M-113 personnel carrier.....	113, 158-159
Communications.....	148, 149
AN/GRC-50 radio relay set.....	149
AN/PRC-25 radio set.....	149
E-2A Airborne Tactical Data System.....	210
Maintenance and combat readiness.....	118, 214-215, 216-217
Marine Tactical Data System (MTDS).....	210, 211
Naval Tactical Data System (NTDS).....	210
Short Airfield for Tactical Support (SATS).....	210
Small arms:	
M-14 rifle.....	211
Targets and drones.....	210
Yemen.....	55, 117

The first part of the paper is devoted to a general discussion of the problem of the origin of life. It is shown that the problem is one of the most important and interesting in the history of science. The author discusses the various theories of the origin of life, and shows that the most probable is the theory of spontaneous generation.

The second part of the paper is devoted to a detailed discussion of the theory of spontaneous generation. It is shown that this theory is based on the fact that life is a complex phenomenon, and that it is not possible to explain the origin of life by the action of a single cause.

The third part of the paper is devoted to a discussion of the evidence in favor of the theory of spontaneous generation. It is shown that there is a great deal of evidence in favor of this theory, and that it is the most probable explanation of the origin of life.

The fourth part of the paper is devoted to a discussion of the objections to the theory of spontaneous generation. It is shown that there are several objections to this theory, but that they are not sufficient to overthrow it.

The fifth part of the paper is devoted to a discussion of the conclusions of the author. It is shown that the theory of spontaneous generation is the most probable explanation of the origin of life, and that it is supported by a great deal of evidence.

The sixth part of the paper is devoted to a discussion of the implications of the theory of spontaneous generation. It is shown that this theory has important implications for the study of the history of life on earth.

The seventh part of the paper is devoted to a discussion of the future of the study of the origin of life. It is shown that there is still much to be learned about the origin of life, and that the study of this problem is one of the most important in the history of science.

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