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ANNUAL REPORT

FOR FISCAL YEAR

1965

Including the Reports of the

SECRETARY OF DEFENSE

SECRETARY OF THE ARMY

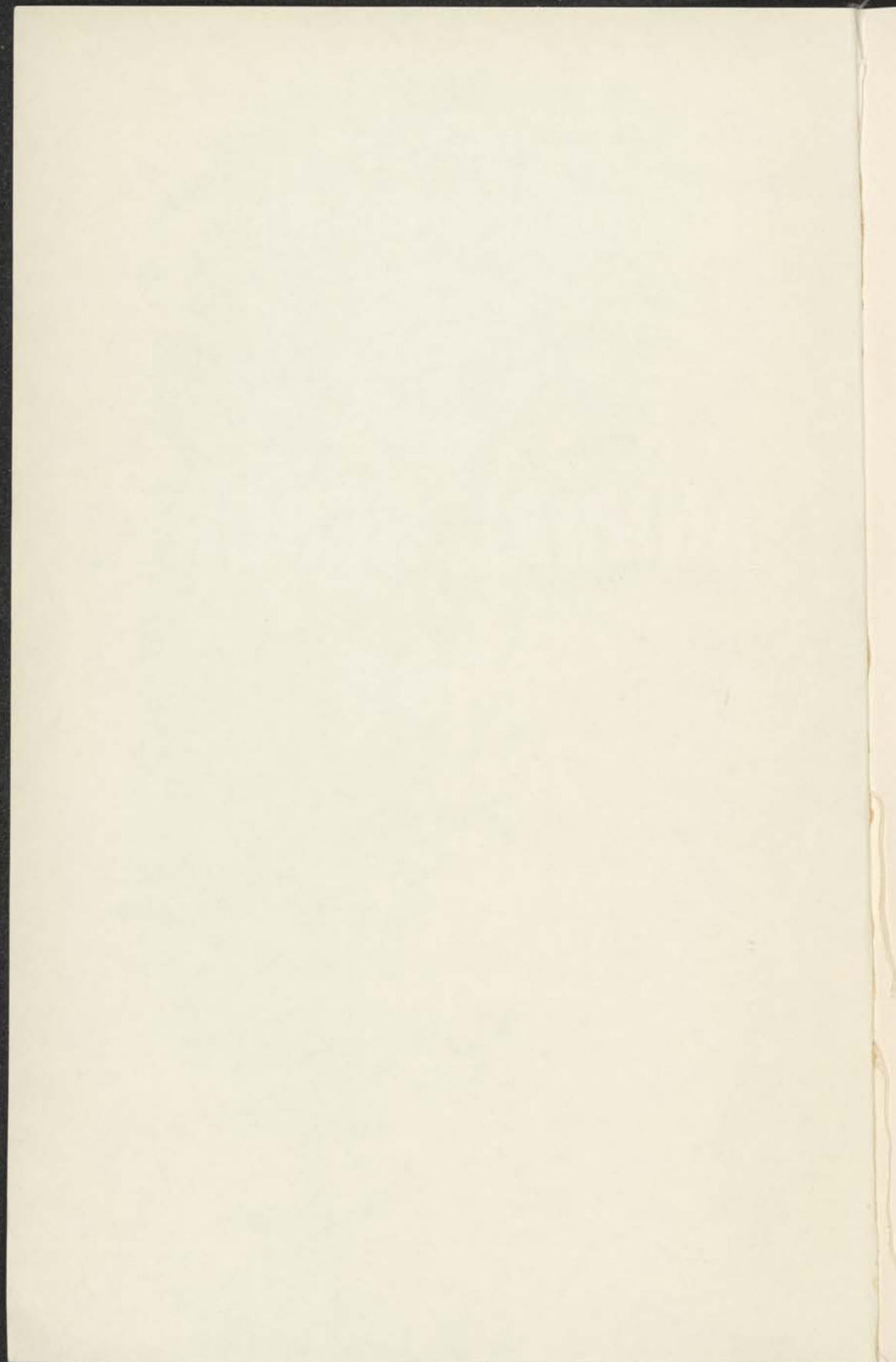
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U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON : 1967

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Letter of Transmittal

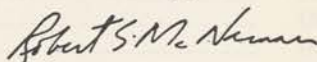
THE SECRETARY OF DEFENSE

WASHINGTON

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 1965, 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

Letter of Transmittal
The Department of Fisheries
Washington

Dear Mr. Forester:
In accordance with Section 2021 of the National Forestry Act of 1906, as amended, I submit the annual report of the Department of Fisheries for the year 1917, together with the reports of the several bureaus of the Department, and also the report of the

Yours respectfully,

Wm. A. Ricker

William A. Ricker

The Forester
The Warrenton

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Operational Highlights of Fiscal Year 1965

Annual Report

of the

SECRETARY OF DEFENSE

July 1, 1964, to June 30, 1965

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I. Operational Highlights of Fiscal Year 1965

Fiscal year 1965 was marked by two developments which significantly tested the readiness and capabilities of the U.S. defense establishment. In Southeast Asia the Communist onslaught on the people and Government of South Vietnam increased dramatically in scope and violence and a series of deliberate attacks were launched against U.S. military personnel and facilities in South Vietnam and even on our ships in international waters. Closer to home, in the Dominican Republic, an abortive military coup in late April 1965 set off a chain of events which led to the complete collapse of governmental authority, leaving the capital city of Santo Domingo in the hands of Communist-infiltrated armed mobs. Both of these developments necessitated the direct employment of U.S. combat forces: In Vietnam, to respond to the attacks on U.S. military personnel, installations, and ships and to support the hard-pressed forces of South Vietnam; and in the Dominican Republic, to evacuate U.S. citizens and other foreign nationals and, later, to prevent Communist elements from seizing control of the government and to allow time for the Organization of American States (OAS) to effect a cease-fire and prepare the way for free elections.

Vietnam

The Communist aggression in South Vietnam, which began in 1959 as a well organized but relatively small-scale guerrilla operation against the Army and security forces of the Government and gradually expanded in scope during the next few years, underwent a fundamental change in character during fiscal year 1965. All indications pointed to a Communist decision to make an all-out attempt to overthrow the Republic of Vietnam as quickly as possible.

This course of action was inevitably influenced by the serious governmental instability that handicapped the Republic of Vietnam in countering Communist aggression. From November 1963 through June 1965 the Government of South Vietnam underwent five major changes, ending with Lt. Gen. Nguyen Van Thieu as Chief of State and Air Vice Marshal Nguyen Cao Ky as Prime Minister. Throughout this period, the rapid turnover of key personnel, especially senior military commanders, had a marked adverse effect on combat operations and

helped greatly to disrupt the entire fabric of the nation's political and economic structure.

The Communists were quick to take full advantage of the confusion and uncertainty which resulted from these rapid changes in the government. In 1964 alone, the Viet Cong increased its strength from about 95,000 to almost 170,000 personnel, and by June 1965, their number exceeded 205,000. Moreover, whereas in earlier years the Communists had relied primarily on local recruitment and the infiltration of native-born South Vietnamese personnel trained in North Vietnam, beginning in 1964 they began to bring in large numbers of indigenous North Vietnamese personnel who had been inducted into the armed forces specifically for duty in South Vietnam. And, in late 1964, the first regular units of the North Vietnam Army appeared in South Vietnam, reaching a total of 14 battalions by June 1965.

At the same time, logistics support for the Communist forces in South Vietnam was greatly increased and the reequipping of the Viet Cong main force units with the "new family" of Chinese Communist-made 7.62-mm. small arms, i.e., assault rifles, carbines, and light machineguns, was begun. Weapons of this type were first captured in the Mekong Delta in December 1964 and began to appear in increasing numbers throughout South Vietnam during the first half of 1965. The regular North Vietnam Army units brought with them the latest types of Communist weapons.

All through 1964 and the first half of 1965 the Communists greatly increased the scope and tempo of their aggression. Large-scale attacks became more frequent and the flow of men and supplies from the North grew. The incidence of terrorism and sabotage rose rapidly and the pressure on the civilian population was intensified. Bridges, railroads, and highways were destroyed or interdicted. Agricultural products were barred from the cities and electric powerplants and communication lines were sabotaged. Whole villages were burned and their inhabitants driven away, greatly increasing the refugee burden on the South Vietnamese Government. In short, the entire economic and social structure of South Vietnam was brought under attack.

The deteriorating military situation was clearly reflected in the statistics. South Vietnamese combat deaths increased from a weekly average of 109 in 1963 to 143 in 1964 and 207 in the first half of 1965. Communist combat deaths actually decreased from 395 per week in 1963 to 322 in 1964, but rose to 457 in the first half of 1965. Weapons lost by the South Vietnamese forces increased from 159 per week in 1963 to 270 in 1964, and 376 in the first half of 1965. Communist losses rose from an average of 104 weapons per week in 1963 to 113 in 1964, and 178 in the first half of 1965. Desertions from the South Vietnamese forces (including Regular, Regional, and Popular forces) rose from

about 36,000 in 1963 to 73,000 in 1964, and to an annual average of about 110,000 in the first half of 1965. Communist defections, including both military and civilian, declined from about 11,200 in 1963 to 5,400 in 1964, but rose again to an annual rate of about 8,000 in the first half of 1965.

Although the South Vietnamese Government made a major effort to increase its forces, raising their strength from about 525,000 at the end of 1963 (including para-military forces and national police) to 625,000 by June 1965, the ratio of Government to Communist forces steadily declined from 5.6 to 1 at the end of 1963 to about 3 to 1 by the end of June 1965. Clearly, the forces of the Government of South Vietnam had to be augmented from external sources.

But there was another reason why the United States was forced to assume a more direct role in the conflict in Vietnam. On August 2, 1964, three North Vietnamese PT boats deliberately attacked the U.S. destroyer *Maddox* which was on routine patrol in the Gulf of Tonkin about 30 miles offshore. Defensive action by the destroyer, assisted by aircraft from the carrier *Ticonderoga*, warded off the attack and damaged all three of the PT boats. The next day the Government of North Vietnam was warned that "the U.S. Government expects that the authorities of the regime in North Vietnam will be under no misapprehension as to the grave consequences which would inevitably result from any further unprovoked offensive military action against U.S. Forces." At the same time, the President instructed the Navy to continue the patrols in the Gulf of Tonkin, doubling the force to two destroyers, and to provide combat air cover. He further instructed the Navy to retaliate to any attack in international waters not simply with the objective of driving off the attacking force but also of destroying it.

These warnings were to no avail and on the evening of the 4th of August, our two destroyers, cruising some 65 miles off the coast of North Vietnam, were again attacked by a force of PT boats. At least four of the attacking craft were sunk and others damaged before the engagement was broken off by the North Vietnamese.

The deliberate and unprovoked nature of these attacks in what were clearly international waters convinced the President and his principal advisers that prompt and firm military response was required. Accordingly, after consultation with the Congressional leaders, the President authorized an air attack against four North Vietnamese patrol boat bases and a major supporting oil storage depot. Sixty-four sorties were flown from the carriers *Ticonderoga* and *Constellation*. All targets were severely damaged, particularly the petroleum installation where 10 percent of North Vietnam's petroleum capacity was 90 percent destroyed. Some 25 North Vietnamese patrol boats were also sunk or damaged. On our side, two aircraft were lost and two damaged.

To prepare for further possible attacks by the North Vietnamese, the President ordered a number of additional deployments to Southeast Asia, including an attack carrier air group, land-based tactical air squadrons, and antisubmarine forces for the South China Sea, while selected Army and Marine Corps forces were alerted for possible future movement.

In order to foreclose the possibility that a misunderstanding of U.S. policy in Southeast Asia might result in a widening of the conflict in that area, the President on August 5 requested the Congress to join with him in reaffirming this Nation's determination to take all necessary measures to protect its armed forces and to assist the free nations of that area to defend their freedom. Within a matter of only a few days a Joint Resolution was passed by a vote of 88 to 2 in the Senate and 416 to 0 in the House. The Congress thereby approved and supported "... the determination of the President, as Commander-in-Chief, to take all necessary measures to repel any armed attack against the forces of the U.S. and to prevent further aggression." It went on to state that "... the United States is therefore prepared, as the President determines, to take all necessary steps, including the use of armed force, to assist any member or protocol state of Southeast Asia Collective Defense Treaty requesting assistance in defense of its freedom." The resolution was signed by the President on August 10.

Despite these repeated warnings, the Communists persisted in their attack on U.S. forces. In South Vietnam the Communists, on November 1, mortar-shelled the Bien Hoa air base, killing 4 Americans and wounding 72, as well as destroying eight United States and South Vietnamese aircraft and damaging many others. On November 18, they bombed a snackbar in Saigon, wounding 18 Americans. On Christmas Eve, a U.S. billet in Saigon was bombed, killing 2 Americans and wounding 64. Six weeks later, on February 7, 1965, the Communists struck an American compound and helicopter base in the Pleiku area, killing 8 Americans and wounding 107. At the same time, several South Vietnamese villages and one town were also attacked. It was clear that Hanoi had ordered a more aggressive course of action against both South Vietnamese and American installations.

Confronted by a serious threat to the survival of South Vietnam and by deliberate attacks on U.S. military personnel and facilities, the Governments of the United States and South Vietnam decided that additional forceful measures were required and required immediately. On February 7, United States and Vietnamese aircraft were directed to strike military barracks and staging areas in the southern part of North Vietnam, which intelligence had shown to be actively engaged in training and infiltrating Communist personnel into South Vietnam. On the same day, the President directed the orderly withdrawal of

U.S. dependents from South Vietnam in order to "clear the decks and make absolutely clear our continued determination to back South Vietnam in its fight to maintain its independence." He also ordered the deployment to South Vietnam of a HAWK air defense battalion, indicating that other reinforcements, in units and individuals, might follow.

Nevertheless, the Communists persisted with their attacks. On February 10, they attacked a U.S. advisers barracks at Qui Nhon, killing 23 Americans and wounding 21. Other acts of terrorism against American personnel followed in February and March, culminating with the explosion of a 250-pound bomb in front of the U.S. embassy in Saigon. Two American and 14 Vietnamese were killed and 48 Americans and 106 Vietnamese were wounded in that incident.

In response to these provocations and the mounting aggression against South Vietnam, the U.S. Government was forced to step up its direct involvement in the conflict. The number of U.S. aircraft attack sorties against military targets in North Vietnam and the lines of communication to South Vietnam were steadily increased. On March 6, 1965, the U.S. Government announced that, in response to a request of the Government of South Vietnam, two U.S. Marine Corps battalions would be stationed in the Da Nang area for the security of the air base complex. Five more Marine Corps battalions and two Army Airborne Infantry battalions were deployed during the balance of the fiscal year, making a total of nine. In addition to the HAWK battalion deployed earlier, three 105-mm. artillery battalions were deployed later in the fiscal year, plus six Army and Navy construction battalions.

The Navy's Seventh Fleet in the South China Sea off the coast of Vietnam was also substantially augmented in the second half of fiscal year 1965. By the end of the fiscal year, four attack carriers, one cruiser, and 23 destroyers were in place, plus a number of amphibious and support ships. In the spring of 1965, the U.S. Navy joined with the South Vietnam Navy in a tight coastal patrol to reduce and possibly eliminate the infiltration of men and materiel via the sea. Some 35 U.S. Navy ships and craft were engaged in this mission by the end of the fiscal year.

To provide for the increase in attack sorties against military targets in North Vietnam and infiltration routes to South Vietnam, and to support our own ground forces, U.S. air strength in Southeast Asia had to be increased substantially in the spring and summer of 1965. By the end of the fiscal year, we had almost 600 fighter and attack aircraft in that area, including those aboard the carriers in the South China Sea, plus almost 400 nonattack fixed-wing aircraft, i.e., observation, reconnaissance, utility, and transport. To provide short-range combat lift, close-in suppressive fire support, and air/sea rescue, etc.,

more than 500 helicopters were deployed in South Vietnam by June 30, 1965.

Total U.S. military personnel strength in South Vietnam increased by some 43,500 during fiscal year 1965, from about 16,500 at the beginning of the year to almost 60,000 by the end of the year. By June 30, 1965, we had more than 100,000 U.S. military personnel in all of Southeast Asia, including those aboard ships in the South China Sea. Moreover, by the close of the fiscal year, it was clear that additional U.S. forces would be required to stem the Communist assault which had been mounting in fury all during the spring and early summer of 1965. Indeed, by the middle of June, orders had already been issued to bring U.S. military strength in South Vietnam to about 75,000, including six more combat battalions and their supporting forces.

Throughout this period, the United States intensified its diplomatic efforts to persuade the North Vietnamese to leave their neighbors alone. In his August 5, 1964, message on the Tonkin Gulf attack, the President assured the Congress that "we shall continue to explore any avenues of political solution." Again and again, the President, the Secretary of State, and other Government officials explained the limited nature of U.S. objectives, seeking "no territory, no military base, no political ambition," but solely the maintenance of South Vietnamese independence free from outside interference. On numerous occasions during the fall of 1964 the President indicated his willingness to "go anywhere, talk to anybody, make any plan that can honorably be made to achieve understanding."

The search for a peaceful settlement was continued in the spring of 1965 despite the continued expansion of Communist aggression. Its most explicit expression was given on April 7, when the President in his speech at Baltimore reaffirmed our limited objectives and declared that the United States remained ready for "unconditional discussions" to achieve an honorable peace. All possible avenues to initiate discussions were explored—bilateral diplomacy, a pause in bombing operations from May 12 to 18, formal and informal approaches by allies and neutrals, and the machinery of the 1954 Geneva Conference and that of the United Nations. Finally, in his speech at San Francisco on June 25, commemorating the 20th anniversary of the United Nations, the President called upon "the nations of the world to use all their influence, individually and collectively, to bring to the tables those who seem determined to make war." All these efforts proved unavailing as North Vietnam pursued its course of willful aggression.

The deteriorating situation in Southeast Asia also alarmed other nations in the Pacific, and by the end of the fiscal year Australia had deployed some 1,100 military personnel to South Vietnam, including one combat battalion of ground forces. By that time South Korea had

also sent about 2,100 advisory personnel to South Vietnam, mostly engineering troops and their security forces. A large number of other friendly nations furnished a wide variety of economic and technical assistance.

The Dominican Republic

The second test of the readiness and capabilities of the U.S. defense establishment to support our foreign policy arose very suddenly in the last week of April 1965. On April 24, 1965, dissident elements of the Dominican armed forces seized the Government radio stations in Santo Domingo and attempted to overthrow the ruling civilian junta in favor of deposed former president Juan Bosch. Although the Government fell on the following day and the rebels announced creation of a constitutional government with an acting president, other military elements led by senior officers of the armed forces initiated a counter-revolution and established a competing government. In riposte, the dissidents passed out rifles and machineguns to several thousand civilian sympathizers and adherents, including juveniles. The ensuing street fighting between the opposing forces endangered the lives of noncombatants, including the sizable foreign colony. Accordingly, the U.S. Government, while trying to arrange for a cease-fire locally and through the OAS in Washington, also began immediate preparations for the evacuation of its citizens and other foreign nationals who might wish to leave the Dominican Republic.

The Commander-in-Chief, Atlantic (CINCLANT), was directed to deploy an amphibious squadron off the Dominican coast. As the situation ashore continued to deteriorate despite the efforts through diplomatic channels to restore peace, the order was given to evacuate U.S. citizens and other foreign nationals. On Tuesday afternoon, April 27, loading began on board the *Bower* and other ships of the naval squadron. Meanwhile, the bloody fighting in Santo Domingo intensified and spread to the western sector of the city, where many foreign embassies were located and where civilians had collected awaiting evacuation. Neither of the contending parties was willing or able to guarantee the safety of these people, since neither was really in control of the situation. Under these circumstances, the American Ambassador on Wednesday afternoon, April 28, urgently recommended to the President that U.S. Marines be landed to protect the American Embassy and help evacuate innocent bystanders caught in the cross-fire of civil war. The President responded at once, and some 400 Marines were put ashore in western Santo Domingo. In the face of continued attacks, they were reinforced the next day, and early on April 30 Army airborne elements were airlifted from the United States to the San Isidro

airfield to the east of the city. Supporting Air Force tactical units were moved to the Caribbean area and the naval task force was strengthened.

Although the Papal Nuncio in Santo Domingo on April 30 secured the agreement of both sides for a cease-fire, fighting continued. On the same date the Organization of American States, which had previously been advised of U.S. actions, convoked a meeting of consultation of foreign ministers and adopted a resolution calling for a cessation of hostilities and for the establishment of an international safety zone in the western section of Santo Domingo. U.S. Marines were deployed in positions to give effect to this resolution. The OAS Meeting of Consultation on May 1 then appointed a five-nation committee charged with proceeding to Santo Domingo and arranging for a cease-fire. By this time, although the situation was shifting and confused, it had become increasingly clear that elements of the extreme left were exercising an ever more predominant role within the rebel ranks. As Communists, including some trained in Cuba and other Communist countries, assumed positions of leadership, most of the original rebel leaders took refuge in foreign embassies.

This shift in rebel leadership, the continuing assaults on foreign embassies, and harassment of persons awaiting evacuation required the United States to reinforce its troops ashore. At the recommendation of the U.S. Ambassador, the Marines in western Santo Domingo and the Army airborne units at San Isidro extended their lines on May 2-3 to establish a neutral corridor 16 miles long. This international corridor also had the effect of separating rebel elements, which were largely concentrated in southern Santo Domingo, from the regular military units in the northern part of the city. American troops, in addition to defending themselves against snipers and assisting in evacuation, began to distribute medical supplies and food to the innocent victims of the uprising in all parts of the city.

Through the good offices of the OAS ad hoc committee, the opposing sides accepted a new cease-fire on May 5 and recognized the international safety zone. Taking note of these arrangements, the OAS on May 6 resolved to establish an Inter-American Peace Force in the Dominican Republic, charged with maintaining security and establishing an atmosphere of peace and conciliation. Pending arrival of Latin American contingents, U.S. troop strength was further reinforced in order to carry out OAS objectives, evacuate the remaining foreign residents who wished to leave, and distribute necessary relief supplies and food. By mid-May, a peak strength of 23,850 U.S. soldiers, Marines, and airmen were in the Dominican Republic, some 38 naval ships were positioned offshore, and other Navy and Air Force units were deployed close at hand in the Caribbean. These forces assisted

in the evacuation of nearly 6,500 men, women, and children of 46 nations, and in the distribution of more than 8 million tons of food to Dominican citizens of all political beliefs.

The Inter-American Peace Force (IAPF) was formally established on May 23. Gen. Hugo Pansco Alvim of Brazil was named Commander; his deputy was Lt. Gen. Bruce Palmer, Jr., U.S. Army, Commander, U.S. Forces in the Dominican Republic. In addition to Brazil and the United States, Costa Rica, El Salvador, Honduras, Nicaragua, and, later, Paraguay contributed troops or special police to the force. As these contingents arrived and as the situation stabilized, the United States began withdrawing some of its forces late in May. By the end of the fiscal year, U.S. troop strength ashore had been cut nearly in half.

With the lines more or less stabilized, U.S. and OAS diplomats labored to restore normal conditions and establish the "atmosphere of peace and conciliation" called for by the OAS resolution—but this task proved no easy one in a country so rent by political divisions. Sporadic small-arms fire and even occasional concerted attacks constantly disrupted the search for a peaceful solution. Throughout the summer of 1965, the IAPF continued to play a neutrol role, separating the combatants and at times fending off attack on its personnel. Not until August 31 was an OAS special three-man commission successful in obtaining the agreement of both sides to an "Act of Reconciliation" that provided for a provisional government to succeed both the military junta and the rebel regime. Pending the full restoration of peace and stability and a more permanent government, the OAS determined that the IAPF should remain on the island; the United States indicated its willingness to contribute a share of the necessary troop strength.

The U.S. defense establishment met the test in the Dominican Republic with great speed and efficiency, but not without cost. By the close of fiscal year 1965 a total of 24 American servicemen had given their lives and another 156 were wounded in helping the Dominican people to obtain a government of their own choice.

II. Operational Forces

The active involvement of U.S. armed forces in Southeast Asia and the Dominican Republic in fiscal year 1965 demonstrated once again the vital importance of military preparedness. Until a more peaceful world order has been established and armaments reduced, the U.S. must continue to maintain large, versatile, and highly ready forces capable of dealing with the entire spectrum of military threats, ranging from strategic nuclear war to guerrilla wars and insurrections. And we must continue to provide that critical margin of military assistance still needed by some of our friends and allies to enable them to carry their share of the burden of collective defense of the free world. The cost of defense is admittedly high, averaging about \$49.2 billion per annum over the past four fiscal years, but it is a cost the American people must be willing to bear if peace and security are to be preserved.

Strategic Forces

The strategic forces program, comprising the offensive and defensive forces and civil defense, is designed to provide two basic capabilities:

1. To deter deliberate nuclear attack upon the United States and its allies by maintaining a highly reliable ability to inflict an unacceptable degree of damage upon any single aggressor, or combination of aggressors, even after absorbing a surprise first strike.

2. In the event such a war nevertheless occurred, to limit damage to our population and industrial capacity.

The first capability might be called "assured destruction" and the second "damage limitation." The strategic *offensive* forces—the ICBM's, the submarine-launched ballistic missiles (SLBM's), and the manned bombers, which are usually associated with the first capability—can also contribute to the second. They can do so by attacking enemy delivery vehicles on their bases or launch sites, provided they can reach those vehicles before they are launched at our cities. Conversely, the strategic *defensive* forces—manned interceptors, anti-bomber surface-to-air missiles, antiballistic missile missiles, which are usually associated with the second capability—can also contribute to the first. They can do so by successfully intercepting and destroying

the enemy's offensive weapons before they reach our strategic offensive forces on their bases and launch sites.

Strategic Offensive Forces

Our strategic offensive forces are and will continue to be fully capable of carrying out their basic mission under any foreseeable circumstances. Since 1961 the number and megatonnage of nuclear weapons in the alert forces has just about tripled. Equally significant has been the shift in the force structure from aircraft to missiles, with the crossover point being reached on June 30, 1965, when long-range missiles outnumbered manned bombers for the first time.

The programs presented to the Congress in this period have provided for the requisite growth in our strategic forces to counter any possible future expansions of the nuclear threat. More advanced and versatile missiles were under priority development, and bomber aircraft continued to undergo extensive modernization programs to retain their combat effectiveness in a changing defense environment.

Strategic Missiles

On June 30, 1965—2½ years after the first MINUTEMAN units became operational in December 1962—the fifth wing of MINUTEMAN I missiles was turned over to the operational control of the Strategic Air Command. This completed the activation of 800 of these solid propellant weapons, 200 during fiscal year 1965. At the same time, construction was under way on 150 of the 200 additional MINUTEMAN silos authorized in fiscal years 1964 and 1965. These new sites, with a protected launcher-power supply, will be equipped with MINUTEMAN II missiles, providing an increase in combat effectiveness of about 30 to 40 percent over the MINUTEMAN I. The new missile will have a heavier payload and/or greater range, increased accuracy, and improved flexibility in the choice of preassigned targets. Further expansion of the MINUTEMAN II force is provided by the program for retrofitting MINUTEMAN I launchers over the next few years with this more advanced missile. In view of this substantial qualitative improvement in our land-based missile force, the tentatively planned long-range goal for the MINUTEMAN force has been established at a total of 1,000 sites.

The scheduled phaseout of the 126 ATLAS and 54 TITAN I first-generation missiles was completed during the year. The 54 TITAN II missiles which have storable liquid fuel are being continued in an operationally ready status in their underground silos.

With the commissioning of 8 more ballistic missile submarines during the year, the POLARIS fleet increased to 29, carrying a total of 464 missiles. Of the 29 submarines, 11 were armed with the 2,500-

mile POLARIS A-3 missile, which was first deployed at sea on September 28, 1964; 13 had the intermediate-range, 1,500-mile A-2 missile, and 5 had the 1,200-mile A-1. The 5 POLARIS A-1 ships are to be retrofitted with A-3 missiles, and at the close of the fiscal year, 4 of these were either in or about to enter overhaul. This left 25 POLARIS submarines in operational status, with 4 of them assigned to the Pacific where the first POLARIS patrol went to sea on December 26, 1964.

An additional 7 POLARIS submarines had been launched by June 30, 1965, and 5 more were on the ways; these ships, when commissioned, will bring the force to its full authorized strength of 41. Although no further submarine construction is scheduled at this time, consideration is being given to possible improvements in the weapons they carry. On January 18, 1965, the President announced that work had been started on the new submarine-launched POSEIDON missile, which will have double the payload of the A-3 and greatly increased accuracy and flexibility. Project definition for POSEIDON was initiated by the Navy in April 1965.

Inasmuch as our assured destruction capability depends on our strategic missiles being able to destroy their targets regardless of enemy defenses, we have undertaken a major research effort for the development of penetration aids. About \$1 billion had been programed for this purpose through fiscal year 1965. This effort to improve missile reentry techniques includes research on new structural materials and heat shields to increase yield-to-weight ratios, experiments with new types of reentry vehicles to reduce radar detection capabilities, and the development of improved arming and fuzing concepts for greater accuracy. Particular emphasis was placed on the development of new devices to overcome any antimissile defense systems that may be deployed by an opponent. Since the problems of the offense are the converse of those of the defense, the work on penetration aids has been closely coordinated with our own ballistic missile defense projects.

Strategic Bombers

The manned bomber elements of the strategic offensive forces at the close of fiscal year 1965 comprised 630 long-range B-52's, 80 medium-range supersonic B-58's, and over 200 older medium-range B-47's. Substantial numbers of B-52's were equipped with HOUND DOG standoff, air-to-surface missiles and QUAIL decoys to assist the entire force in penetrating enemy defenses.

The combat capabilities of the B-52 were being further enhanced by a major modification program which includes the strengthening of

the fuselage, tail, and wings of the aircraft and the installation of new electronic equipment. About \$1.8 billion had been programed for this work through fiscal year 1965. The 15-minute ground alert for half the bomber force was continued during the year. A capability to fly one-eighth of the B-52's on continuous airborne alert was also maintained. Airborne refueling capabilities continued to increase as more of the larger KC-135 jet tankers were delivered to replace the KC-97's.

The rapid increase in the ballistic missile force inevitably raised major questions as to the proper size, character, and mission of the bomber force. The current advantages of a mixed force of bombers and missiles argue in favor of the continuation of the B-52 modernization program to maintain the effectiveness of the later models into the early or mid-1970's. The 30 B-52B's in the force were scheduled for deactivation since the high cost of modification and maintenance of these early models would not yield any significant addition to our growing strategic offensive capabilities. After the phaseout of the B-47's at the end of fiscal year 1966, the bomber force will consist of 600 B-52's and 80 B-58's.

The question of how best to preserve the manned-bomber option for the period following the retirement of the B-52 force in the 1970's remained under active study. In early 1965, two alternative solutions to this problem were under consideration. One would involve the production of a bomber version of the new F-111 fighter, while the other envisaged the development of a radically new Advanced Manned Strategic Aircraft (AMSA). Considering the leadtime of the requirement, it was decided to keep both options open. A decision on the production of an FB-111 was not required, since it could be made available on relatively short notice. To maintain the AMSA alternative, work was continued on the basic design and specifications as well as on the advanced engines and avionics required for the new aircraft. At the same time, the development of a new short-range attack missile (SRAM) was initiated to provide either aircraft with a smaller, more accurate, low-altitude air-to-surface missile than the HOUND DOG.

Substantial improvement in our strategic reconnaissance capabilities was foreshadowed by the President's announcement on July 24, 1964, of the successful development of the SR-71, a new aircraft designed to operate at altitudes in excess of 80,000 feet at a speed three times that of sound. The first flight test took place on December 22, 1964. Production models were scheduled to become available during fiscal year 1966 for assignment to the 4200th Strategic Reconnaissance Wing, which was activated in January 1965 at Beale AFB, Calif.

Strategic Defensive Forces

In recent years, this program, previously known as the Continental Air and Missile Defense Forces, has focused on two major problems: (1) How to increase the survivability and effectiveness of the existing antibomber defense system, designed in the 1950's when bombers rather than missiles constituted the major threat; and (2) the development of antimissile defenses for possible future deployment, if our national security interests so require. Further progress was made during fiscal year 1965 toward the solution of both problems.

Antibomber Defenses

The radar warning systems for alerting our country to an enemy bomber attack were constructed with considerable redundancy in coverage to compensate for the possible destruction of some of the elements. In today's defense environment, however, where an enemy missile attack would most likely precede a bomber attack, redundancy in this type of coverage has lost most of its significance. During fiscal year 1964 some of the duplicative Distant Early Warning (DEW line) radars in Canada and Alaska were phased out; this was followed in fiscal year 1965 by the elimination of six search and eight gap-filler radars in Canada and the United States. In addition, plans were announced for the withdrawal of the aircraft assigned to the seaward extensions of the DEW line and of the 22 radar picket ships committed to the contiguous barrier patrol. Offshore coverage will be continued, however, by aircraft equipped with automatic long-range input transmitters.

Over-all control of the continental defense forces is vested in the North American Air Defense Command (NORAD), a combined United States-Canadian headquarters, whose responsibility stretches from the Gulf of Mexico to the Arctic Ocean. The installation of new automatic command and control equipment for NORAD at an underground combat operations center near Colorado Springs, Colo., approached completion during the year; this new command post will greatly reduce the vulnerability of the NORAD control system to nuclear attack. Inasmuch as hardening of the regional Semi-Automatic Ground Environment (SAGE) combat and direction centers had not proved feasible, this left them extremely vulnerable to ballistic missile attack. Therefore, a program for supplementing SAGE with widely dispersed semi-automatic Back-Up Interceptor Control (BUIC) stations was initiated in 1962. The revised SAGE/BUIC command and control system has permitted the deactivation of one SAGE combat center and six SAGE direction centers, and four additional direction centers were scheduled for deactivation in the future.

During fiscal year 1965, the development of BUIC III, providing twice the coverage of BUIC II, made possible a substantial reduction in the number of BUIC stations originally planned. The SAGE/BUIC system tracks all aircraft in a sector, computes the best points for interception, and then directs aircraft and long-range surface-to-air missiles to the targets.

The strength of the interceptor force continued to be adjusted in line with the present and anticipated bomber threat as one wing of the regular air defense force was eliminated. The survival potential of the remaining force was increased by further dispersal to additional bases. New electronic equipment was also provided for these aircraft to improve their effectiveness, particularly in operations against low-flying targets and in an electronic countermeasures environment. In the Air National Guard units assigned to continental defense, the phaseout of the F-86's and the F-100's, which have no all-weather capabilities, was completed while the buildup of the F-102 inventory continued.

The problem of whether to produce and deploy a new manned interceptor remained under study. The most promising solution appeared to be either a modified version of the F-111B or the YF-12A currently being developed. A prototype of the latter aircraft set new world records in May 1965 by reaching a speed of 2,062 miles per hour and maintaining horizontal flight at an altitude of 80,000 feet. Before a decision on the production of either aircraft is reached, however, the actual need for making the considerable expenditures involved would have to be clearly demonstrated.

No major changes were made in the programs for surface-to-air missile systems. The 400-mile BOMARC-B continued to be deployed at eight sites—six in the United States and two, manned by Canadian personnel, in Canada. The remaining shorter range, liquid-fueled BOMARC-As were phased out during the year. The program for transferring the manning responsibility from the regular Army to the Army National Guard for the 48 NIKE-HERCULES batteries in the continental United States and for 6 in Hawaii was completed. The regular Army HAWK batteries were kept at their previous strength, and steps were being taken to improve their capabilities by the development of improved components.

Antimissile Defenses

The primary nuclear threat confronting the United States today consists of ICBMs and SLBMs rather than manned bombers. While defense against such a missile attack requires much the same capabilities as an antibomber defense—namely, receiving warning and track-

ing, intercepting, and destroying the delivery vehicle—the problem is vastly more complex because of the shorter time periods and higher speeds involved. Progress made in this area during the year included further improvements in warning and significant advances in the development of an effective antiballistic missile system.

Warning of a land-based missile attack is provided primarily by the Ballistic Missile Early Warning System (BMEWS). All three BMEWS stations—at Clear, Alaska; Thule, Greenland; and Fylingdales, United Kingdom—were operational during fiscal year 1965, while work to increase their coverage and reliability was underway. A major improvement in our detection capabilities, the development of an over-the-horizon radar, was announced by the President on September 17, 1964. This new technique, based on bouncing radar or radio waves off the ionosphere, enables us to detect distant missile launchings shortly after takeoff through changes in the reflective pattern caused by the missile passing through the upper atmosphere. The experimental stations constructed in connection with the development program provided an early operational capability.

With respect to submarine-launched missiles, contract negotiations were initiated to modify selected air defense radars along the east, west, and Gulf coasts of the United States to improve their detection capabilities against this type of attack.

Information on satellites continued to be acquired through NORAD's space detection and tracking system (SPADATS). The destruction by fire in January 1965 of a new phased-array radar being constructed at Eglin AFB, Fla., as part of SPADATS will delay the operational availability of this advanced equipment.

The development of an effective antiballistic missile defense system has been pursued as a matter of the highest priority for many years. While various technical and operational problems remain to be solved, progress to date on the Army's NIKE-X has fostered confidence in the ultimate feasibility of this system. As currently conceived, NIKE-X would be composed of a new multifunction-array radar (MAR); missile site radars (MSR); long-range ZEUS missile; new, quickly reacting, high acceleration, short-range SPRINT missiles; and advanced data processing and control elements. System components could be hardened to render them less vulnerable to direct attack. The MAR is being designed to perform functions that formerly required four different radars—the detection and acquisition of targets; discrimination between warheads and decoys; tracking the target; and guiding the interceptor vehicles. The MAR radar beams will be directed electronically rather than mechanically, thus providing a capability for tracking multiple targets practically simultaneously. The lack of this capacity had been a major limitation of the earlier NIKE-

ZEUS system. An experimental prototype MAR was tested at White Sands, N. Mex., during the year. The development of the new SPRINT missile advanced as an unguided launching of a two-stage prototype in March 1965 closely matched the specifications for acceleration and propellant burning rates. The NIKE-ZEUS had demonstrated its capability for intercepting incoming warheads in tests during the previous year.

Supplementing the NIKE-X development effort is the basic research on missile defense carried on through Project DEFENDER, sponsored by the Department's Advanced Research Project Agency (ARPA). It includes comprehensive investigations of missile phenomenology as well as studies of advanced phased-array radars and high acceleration missile interceptors.

Assuming that satisfactory solutions are found to the remaining technical and operational problems of NIKE-X, the eventual decision on production and deployment will have to be based on a close scrutiny of all aspects of our defense posture and those of our potential opponents. For example, what weight should be given to the fact that improvements in our defenses can be quickly offset by increases in enemy offensive forces, since the cost advantages greatly favor offensive systems? Moreover, since a balanced, integrated combination of strategic offensive forces, area defense forces, terminal defense forces, and passive protective measures is required for an effective defense in depth, what additional programs must be initiated if NIKE-X is deployed? How extensive should such a NIKE-X deployment be? Pervading all these questions is the uncertainty of what our potential enemies will actually do—what kind of force will they build, what kind of attack might they launch, how effective would their weapons be? Pending greater clarification of these issues, the Department's recommendation, approved by the Congress, called for the augmentation of our assured destruction capability as outlined earlier, the deferral of the NIKE-X deployment decision, and the allocation of ample funds for continued development of ABM defenses on a most urgent basis.

For defense against hostile satellites, two weapon systems reached operational status during the summer of 1964—one a modification of the Army's NIKE-ZEUS and the other of the Air Force THOR. Both successfully demonstrated their intercept capability against U.S. satellites and were placed under the operational control of the Continental Air Defense Command, the U.S. component of NORAD.

Civil Defense

The provision of approximately 240 million fallout shelter spaces for the protection of the American people at work and at home could save an estimated 30 million lives in case of nuclear attack. Such a

program would yield the highest return in terms of lives saved per dollar of additional expenditure on damage limitation measures. The Department's plan for achieving this objective by a joint effort—drawing on Federal, State, and local government funds as well as on private resources—failed, however, to obtain Congressional approval. Lacking authorization to enter upon cost-sharing arrangements, the Department concentrated on locating, marking, and stocking shelter spaces in existing facilities.

By the close of fiscal year 1965, spaces for 136 million people had been identified, 76 million had been marked, and 34 million had been stocked with emergency supplies. Late in the year, surveys of smaller buildings were initiated with the expectation that some additional 5 million spaces might be located during the next 2 years. The Office of Civil Defense (OCD) continued to cooperate with engineers, architects, and local governments in the development of community shelter plans and the inclusion of shelter in new construction. A more detailed account of OCD programs and progress for the year is included in the report of the Secretary of the Army.

General Purpose Forces

The basic function of our general purpose forces is to carry out limited warfare operations, whenever required, in situations calling for the selective and controlled application of force short of total nuclear war. This function demands that these forces possess the capability to respond swiftly to any threats to the territorial integrity of the United States and to its other vital interests, including our Nation's commitment to the principle of collective security.

The great variety of contingencies related to this mission complicates the determination of what specific forces and capabilities should be provided. While full preparation for all possible contingencies is obviously infeasible, our general purpose forces must nevertheless be prepared to act effectively in a wide range of situations from limited conventional or tactical nuclear war to localized insurgencies. In these calculations, careful consideration must be given to the capabilities of our allies and the contributions of military aid programs. The composition of the active forces must also be balanced with the readiness of the reserves. In addition, the crucial deployment time factor affects decisions on the stationing of forces overseas, the size of our airlift and sealift resources, and the pre-positioning of materiel.

Close evaluation of these factors in 1961 and 1962 dictated a long-term buildup of the general purpose forces. Personnel ceilings were raised and additional resources made available to modernize weapons and equipment and reduce deficiencies. As a result, by the end of fiscal

year 1965 these forces were in a far better position than heretofore to meet possible contingencies. While no major alterations were made in the force structure during the year, overall combat capabilities were substantially increased by a steady flow of new materiel to tactical units and the progressive accumulation of war reserve stocks.

Army

During fiscal year 1965 the Army continued to maintain a force of 16 combat-ready divisions, a level which was established during 1961-62 when two new divisions were authorized and three training divisions raised to combat status. In addition, the nondivisional force structure included seven separate brigades, four regiments/regimental combat teams, two missile commands, seven special forces groups, and 56 air defense missile battalions. The conversion of divisional and other units to the new ROAD tables of organization and equipment, completed during the preceding year, has provided these forces greater flexibility, firepower, and maneuverability.

Military personnel strength on June 30, 1965, totaled about 969,000—some 110,000 above 1961, but a decrease of 4,000 from the preceding year.

The decision announced in June 1965 to establish an airmobile division as part of the Army's 16-division force will further improve the Army's operational capabilities. This decision, based on the recommendation of the Joint Chiefs of Staff, was the result of some 3 years of experimentation, testing, and evaluation of new concepts for increasing the mobility of assault forces. The tests during fiscal year 1965 included two major exercises: AIR ASSAULT II, an Army test of the provisional air assault division at Ft. Benning, Ga.; and GOLD FIRE I, a joint Army-Air Force brigade-level maneuver at Ft. Leonard Wood, Mo. Although the personnel strength of the new 1st Cavalry Division (Airmobile) will be about the same as that of a ROAD infantry division, the former will have 434 aircraft or over 4 times as many as the latter, thus permitting the simultaneous lift of one-third of the division. The new division's capability to react quickly and maneuver rapidly should prove particularly effective in jungle or mountainous areas where difficult terrain and poorly developed lines of communications would impede heavier, standard divisions.

The program for improving the Army's logistics readiness has required large investments in new weapons, equipment, and supplies. About \$7.9 billion was appropriated for this purpose during fiscal years 1962-64. When this materiel is delivered, the Army will have largely achieved the interim objective announced in January 1962, namely, to provide the initial equipment required for 16 regular and

6 reserve divisions plus sufficient inventories of materiel and supplies to maintain the regular divisions and their supporting elements in combat until production lines at home can reach wartime consumption rates. The procurement orders placed during fiscal year 1965 were designed to eliminate remaining deficiencies, keep production lines open at minimum sustaining rates, and continue the modernization of equipment. This program required about \$1.8 billion in new obligational authority in 1965 as compared to \$2.9 billion for the preceding fiscal year.

Deliveries of new equipment during fiscal year 1965 increased the Army's aircraft inventory by 595, to a total of 6,933—consisting of 4,240 helicopters and 2,693 fixed-wing aircraft. The proportion of helicopters continued to grow with 791 more helicopters and 196 fewer fixed-wing aircraft in the inventory at the end of the year than at the beginning. The helicopter additions included primarily the utility Iroquois, the light observation Sioux and Raven, and the medium transport Chinook. Deliveries of additional tanks, self-propelled artillery, armored personnel carriers, and other combat equipment further increased the Army's firepower and mobility on the ground. Guided missiles for a broad range of tactical support missions were supplied to operational forces, including the HAWK for the air defense of field forces, SS-11 and ENTAC antitank weapons, and SERGEANT and PERSHING surface-to-surface missiles. Tactical nuclear capabilities continued to grow with substantial improvements being made in surface-to-surface missile systems and new artillery ammunition.

Production of two new missiles began during the year—REDEYE, for the air defense of front line troops against low-flying planes, and SHILLELAGH, a versatile gun/missile system to be installed on some M-60 tanks and the new General Sheridan armored reconnaissance vehicle. Other new weapons well along in development by the close of the year included the LANCE surface-to-surface missile, scheduled to replace HONEST JOHN and LITTLE JOHN artillery rockets; a composite missile/gun forward area air defense system that will incorporate the CHAPARRAL, a modification of the Navy's SIDEWINDER air-to-air missile in a surface-to-air configuration; and the TOW antitank missile to replace SS-11 and ENTAC. A new light observation helicopter was approved for production as an eventual replacement for the Sioux and Raven helicopters and the Bird Dog fixed-wing observation aircraft. The design and production of a new main battle tank was carried forward as a joint project with the Federal Republic of Germany.

While instruction in counterinsurgency techniques and methods has become part of the training of all combat and combat support ele-

ments, the Army's Special Forces groups, headquartered at Ft. Bragg, N.C., concentrate exclusively on this type of warfare. During the year, these forces made substantial contributions in both Vietnam and the Dominican Republic and, in addition, provided training in counter-insurgency and civic action to a number of allied nations.

Navy and Marine Corps

The steadily growing capability of the Navy and Marine Corps to carry out a wide variety of military tasks swiftly and effectively was clearly demonstrated during fiscal year 1965 in Southeast Asia and the Caribbean. Current programs of ship construction and conversion, weapons and equipment procurement, and research and development for the modernization of the fleet and its supporting forces should serve to increase this capability still further in the years ahead.

With 800 ships in commission on June 30, 1965—407 warships and 473 other combatant vessels and auxiliaries—the Navy registered a net gain of 21 ships during the year. Personnel strength increased by nearly 4,000 in the same period to a total of 671,000. While the end-year totals represented an increase of 61 ships and 44,000 men since June 30, 1961, even more significant was the fact that during fiscal years 1962–65 a total of 122 new general purpose ships had been authorized for construction and 89 existing ships for conversion involving major alterations and modernization at a cost of nearly \$6.2 billion.

The commissioning of the *America*, a *Forrestal*-class carrier, on January 23, 1965, brought the number of attack carriers in the fleet to 16, as an older carrier scheduled to be phased out was temporarily retained. On June 30, 1965, five of these carriers were operating with the Seventh Fleet in the Western Pacific and two with the Sixth Fleet in the Mediterranean, while nine were with the U.S.-based First and Second Fleets or in overhaul. In addition to the nuclear-powered *Enterprise*, which received new cores for its reactors after 4 years of operations, the attack carrier force included seven of the modern *Forrestal*-class, three of the *Midway*-class commissioned between 1945 and 1947, and five of the older *Essex*-class. An eighth conventionally powered *Forrestal*-type carrier, the *John F. Kennedy*, was under construction, while work continued on the development of more economical and efficient nuclear powerplants for possible installation in future carriers. Programs for major alterations of the two *Midway*-class carriers not yet modernized were also approved.

The number of carrier air groups remained at 17 throughout the year, but the delivery of late model aircraft significantly increased their striking power. The first squadron of A-6A Intruders was deployed to the Pacific during the year, and additional quantities of

A-4E Skyhawks, F-4 Phantoms, and RA-5's—the reconnaissance version of the Vigilante heavy attack aircraft—were received. Aircraft in the final stages of development or early production at the close of the year included an improved F-4 Phantom model and a new light jet attack aircraft, the A-7A Corsair II. Development problems encountered with the PHOENIX air-to-air missile, the key to the air defense effectiveness of the F-111B, caused adjustments in the production schedule of this new aircraft designed for the 1970's. Additional air-to-air SPARROW III's and heat-seeking SIDEWINDERS and air-to-surface BULLPUPS and antiradiation SHRIKES increased the missile inventory of the fleet's air arm.

The air defense capabilities of the fleet improved with the commissioning during the year of two guided missile frigates and two guided missile destroyers—the former armed with TERRIER and the latter with TARTAR surface-to-air missiles. The extensive program to improve the operational effectiveness of these two missiles, as well as of the longer range TALOS, proceeded on schedule. The development of a new standardized missile for use on both TARTAR and TERRIER launchers approached the test and evaluation stage and research continued on an advanced missile system to meet the fleet air defense requirements of the 1970's.

The importance of antisubmarine warfare (ASW) is indicated by the fact that over one-third of the Navy's ship construction funds and more than a quarter of its research and development funds were allocated to this mission. The effectiveness of the nine ASW aircraft carriers in operation was increased with the delivery of additional S-2E Tracker aircraft and SH-3A Sea King helicopters. Land-based ASW squadrons were being equipped with the new four-engine P-3 Orion to replace the two-engine P-2 Neptune and the P-5 Marlin seaplane. The ASW capabilities of the surface fleet continued to be improved with the construction of new destroyer escorts and multipurpose destroyers and frigates as well as the modernization of older vessels. New longer range sonar systems were being developed for installation on ships under construction, while sonars on existing vessels were modified to increase their performance, effectiveness, and reliability.

The delivery of such standoff weapon systems as DASH, a drone antisubmarine helicopter, and ASROC, a surface-to-subsurface rocket, further enhanced our submarine destruction capabilities. A new deep-diving, self-guiding ASW torpedo, the MK-46, was introduced in the fleet. The MK-46 can be launched either from torpedo tubes or with ASROC by surface ships, and also by aircraft or helicopters, and is much more effective against high speed deep-diving submarines than its predecessor.

Although the construction schedule for nuclear attack submarines (SSNs) was delayed somewhat by the introduction of the submarine safety program and the incorporation of new safety features, two SSNs were commissioned during the year, bringing the total SSN force to 21. A new sonar system for submarines and SUBROC, a nuclear ASW missile which can be fired from a standard submarine torpedo tube, were in the final stages of development. Further ASW improvements were being sought through a broad research and development effort that ranges from basic research in oceanography to the design of new ships, detection techniques, and weapon systems.

The Marine Corps continued to maintain a personnel strength of about 190,000 organized into three divisions, three air wings, and their supporting elements. The Corps' operational readiness was tested in amphibious training exercises, such as STEEL PIKE in Spain during October 1964 and SILVER LANCE in California during February and March 1965, and was clearly demonstrated in Southeast Asia and the Caribbean during the closing months of the fiscal year. The modernization of Marine ground weapons and equipment made substantial progress. Fighter squadrons continued to transition from F-8 Crusaders to the new F-4 Phantoms, while attack squadrons received their first A-6A Intruders, which together with their A-7A Corsair II's will replace the A-4 Skyhawks. Mobility and vertical envelopment capabilities were improved with the delivery of CH-46 Sea Knight medium assault helicopters. Amphibious warfare vessels totaled 135 on June 30, 1965, including three ships commissioned during the year—a new 18,000-ton amphibious assault ship/helicopter carrier, the *Guam*, and two 14,000-ton amphibious transport docks, the *Austin* and the *Ogden*.

Tactical Air Forces

Because of the critical importance of tactical airpower, a major effort has been made during the last 4 years to expand and modernize the Air Force's tactical air units. By the close of fiscal year 1965, the number of Air Force fighter squadrons had increased 51 percent since 1961. The delivery of F-4C Phantoms in substantial quantities speeded up the modernization program and permitted the phaseout of the last F-84 Thunderstreaks. Doctrine, techniques, and readiness were tested in numerous maneuvers at home and abroad, but the ultimate test was provided by the high quality of the performance of these units in Southeast Asia.

The procurement of new Phantom models, the F-4D and F-4E, with improved capabilities for air-to-ground attack and low altitude intercept will provide further modernization. Work continued on the F-111A, for which the initial production contract was awarded in

April 1965—some 4 months after the first test flight. This variable wing aircraft, with its long range and extended loitering capabilities as well as its high and low speed characteristics, promises a major advance in tactical air power.

Two squadrons of B-57 tactical bombers, previously scheduled for transfer to the Air National Guard, were retained in the active forces and deployed to Vietnam. Nuclear-armed MACE medium-range surface-to-surface missiles continued to be stationed in Europe and on Okinawa.

Major investments since 1961 in conventional missiles, bombs, and ammunition have produced a 500-percent increase in the number of sorties that our tactical fighter aircraft can fly combat-loaded with modern munitions. While the former critical shortages had been substantially overcome by the close of the fiscal year, additional procurement was proceeding in an orderly fashion to build stocks toward newly approved higher objectives.

Our Special Air Warfare squadrons, which provide a tactical counterinsurgency capability to our forces, increased from 10 to 12 as additional A-1E Skyraiders and C-123 Providers were assigned. Other aircraft used for special warfare missions included modified versions of the B-26, T-28, C-46, and C-47 as well as U-10's. The development of a new, light armed reconnaissance aircraft (LARA) specifically designed for limited warfare operations was initiated by the Navy for eventual use by both the Marine Corps and the Air Force. Special Air Warfare training detachments assisted Vietnamese forces throughout the year and also demonstrated antiguerrilla techniques and civic action programs to allied air forces.

Airlift and Sealift

Our airlift capacity has steadily increased in every year since the establishment of an urgent expansion program in 1961, and by the end of fiscal year 1965 had just about doubled. Interim modernization was practically completed during the fiscal year with the delivery of almost all the C-130E's on order, and long-range modernization began as the C-141's entered the active forces. In addition, the Department announced on December 22, 1964, a program for a new jet transport, the C-5A, to be designed particularly for carrying bulky equipment. This aircraft will be capable of doing the work of three to four C-141's.

The C-130E deliveries during the fiscal year permitted the completion of the phaseout from the regular airlift forces of the low capacity, propeller-driven C-118's and C-123's, with the latter being assigned to the Special Air Warfare forces. As additional C-141's are delivered, the few C-135 jets which were bought as an emergency

measure in 1961 will be transferred to other duties and the remaining piston engine transports, the C-124's, will be gradually transferred to the reserves. The C-133 turboprops will be held in the force to meet airlift requirements for large equipment items until the C-5A's enter the inventory.

Each of these modernization steps represented major qualitative advances in our airlift capabilities. The C-130E, compared to the C-124, the backbone of the old airlift forces, contributed greater range, better airdrop characteristics and short field landing ability, making possible its assignment to both the Military Air Transport Service (MATS) and the tactical air assault forces. The C-141 jet retained all the gains of the C-130E and added still more range, an increase in speed from about 350 to 550 miles per hour, and a maximum takeoff weight of over 300,000 pounds compared with about 150,000 pounds for the C-130E. The tremendous advance to be provided by the C-5A is illustrated by its design maximum takeoff weight of about 725,000 pounds, more than twice that of the C-141, and planned payload capability of 250,000 pounds, or more than three times that of the C-141. Constructed specifically for outsize items, the C-5A will be able to carry almost any piece of military equipment, including tanks, trucks, and helicopters. A single C-5A will be able to transport 16 three-quarter-ton trucks or two M-60 tanks. With the implementation of these programs, our airlift capabilities in the early 1970's should be over 1,000 percent greater than they were in 1961.

The 26 transport and 45 troop carrier squadrons of the Air Force reserve components not only provide a substantial augmentation potential in case of a major emergency but also contribute continuing airlift support to the active forces. During 1965 reserve crews participated in tactical exercises, supplied disaster relief, and flew numerous airlift missions to Southeast Asia and the Dominican Republic. The equipment inventory of the reserve components is, of course, being continuously modernized as longer range aircraft are transferred from the active forces and the older shorter range types are retired. By the close of the fiscal year the number of relatively long-range C-97's, C-121's, and C-124's in the reserves had almost doubled as compared to 1961.

An additional supplementary airlift capability is provided by the Civil Reserve Air Fleet (CRAF), composed of aircraft owned and operated by commercial carriers, modified to meet military requirements, and designated for use by the armed forces in time of war. The cargo capacity of the international segment of the CRAF fleet increased 20 percent and passenger capacity 9 percent during the

year as modern aircraft, capable of extended oversea flights, entered the inventory to replace older types.

Our sealift resources consist of the nucleus fleet of the Military Sea Transportation Service (MSTS), a large number of Government-owned "mothballed" reserve ships, and the ships in our merchant marine. The Government's policy is to depend on the reserve fleet and the merchant marine for emergency expansion and to maintain in the MSTS fleet the types of ship particularly suited to meet specific military needs—such as shallow-water tankers, wide-hatch and extra-heavy-boom cargo ships, and forward mobile depot ships.

No changes occurred in the size of the MSTS nucleus fleet until toward the end of the fiscal year, when a number of LSTs were reactivated from the reserve fleet to meet special Southeast Asia requirements—raising the total of MSTS sealift ships to 109.

An extensive analysis of the forward mobile depot concept for the pre-positioning of heavy weapons and equipment aboard ships near distant potential trouble spots pointed up the need for a substantial expansion of this program. Three World War II Victory ships had been modified for this purpose in fiscal year 1963 and stationed in the Philippines. As a result of the new study, the Department proposed not only to modify additional Victory ships as an interim measure, but also to construct, beginning in fiscal year 1966, a new class of fast deployment logistics (FDL) ships with special roll-on/roll-off cargo-handling characteristics. Four of these new ships were included in the President's fiscal year 1966 budget request.

Reserve Forces

A high level of mobilization readiness for the reserve components has long been a key objective. In pursuit of this objective, the Department of Defense in recent years has allocated additional resources and placed major emphasis on the readiness of the high priority units that will be needed first in an emergency. As a result, the reserve units of all the Services have become progressively better prepared to carry out their missions, but some significant deficiencies still remain, particularly in the reserve components of the Army.

To remedy these shortcomings, the Army was directed to develop a plan for the further concentration of materiel and manpower resources in those units required for the support of approved contingency plans. The Army's plan was designed to carry forward the 1962-63 reorganization, which established a priority reserve component force of six divisions, two special purpose divisions, 11 brigades, and supporting units for the active Army. The 1965 plan called for an increase in the manning and equipment levels in these high priority units and

the addition of five separate brigades to the troop structure. It also provided for the elimination of low priority units that could not be made ready for combat until 12 to 18 months after mobilization—about the same length of time required to raise, equip, and train entirely new units. Approximately 2,100 units were earmarked for inactivation under the plan, including the headquarters of 21 divisions—15 from the National Guard and 6 from the Army Reserve. All organized units were to become part of the National Guard, which was to have a personnel strength of 550,000 Ready Reservists on drill-pay status. Other Army reservists on drill-pay status were to be given an opportunity to affiliate with these high priority units or to remain on reserve rolls as individuals.

In summary, the new plan called for streamlining the administrative structure of the Army reserve components, retaining only needed units and increasing their readiness for early deployment, while at the same time preserving participation opportunities for all reservists on drill-pay status.

This plan was presented to the Congress as part of the Department's budget proposals for fiscal year 1966 and, after consultation with Congressional committees, specific legislation to facilitate the implementation of certain aspects of the plan was also submitted. The proposed deactivation of the organized units of the Army Reserve and the reduction in the number of reservists on drill-pay status provoked considerable controversy. At the close of fiscal year 1965, the future of this plan was still uncertain.

Uncertainties about the future did not, however, retard existing programs for the continued upgrading of the reserve forces of all the Services. Expanded active-duty-for-training programs reduced the backlog of untrained personnel; greater use of weekend multiple drills and more joint maneuvers with the active forces raised unit readiness and proficiency levels; and the continued delivery of newer equipment helped to raise materiel readiness and permitted more realistic training.

Total enrollment in the reserve components on June 30, 1965, was 2,808,000, about 27,000 more than at the beginning of the fiscal year. The number of Ready Reservists not on active duty increased by 3,000 to nearly 1,802,000. This growth in strength took place despite the transfer of 277,000 from Ready status to Standby or Retired Reserve categories and the discharge of 253,000 others as a result of periodic screenings of the Ready Reserve rolls to remove those who would not be readily available for active duty during an emergency. A special screening during the year resulted in the transfer out of the Ready Reserve of 4,663 key Federal employees in the executive, legislative, and judicial branches who, because of the nature of their civilian

duties, could not be expected to serve in the armed forces, at least during the early stages of an emergency.

The Army National Guard reported at the close of the fiscal year that its readiness was at the highest level in its history. Training programs and the deliveries of more modern equipment made the principal contributions to this improved posture. Larger quotas for National Guard recruits at Army training centers substantially reduced the number of Guardsmen who had not completed basic training; almost 75,000 men from Guard units entered active duty for training during the year, cutting the backlog of enlistees awaiting orders from 37,700 on June 30, 1964, to 28,300 a year later. Unit training programs provided more concentrated and more realistic drills. Materiel readiness improved with the transfer from the active Army of additional tanks, mortar carriers, armored personnel carriers, and self-propelled howitzers. Army National Guard air defense units completed their conversion to NIKE-HERCULES missiles, which are kept on a continuous alert status. The organized units of the Army Reserve also benefited from more effective training programs and the delivery of newer equipment.

In the Naval Reserve, reassignments of ships and aircraft and increased participation in training exercises with the active fleet improved the combat readiness of the Selected Reserve. During the year the Navy transferred four destroyers on the active list to the Selected Reserve to replace six less effective destroyer escorts. With this transfer, reservists were operating 17 destroyers, 21 destroyer escorts, and 12 mincraft. The Naval Air Reserve included 40 aircraft squadrons, of which 27 were antisubmarine warfare units. Fighter and attack squadrons continued their transition to F-8 Crusaders and A-4 Skyhawks—a program scheduled to be completed during fiscal year 1966. Training flights of naval air transport crews provided substantial direct support to the active forces by airlifting personnel and cargo to oversea destinations.

The Marine Corps Reserve has been charged since 1963 with providing the units and supporting forces that would be required for the activation of the fourth Marine division/wing team. Continued progress in increasing the readiness of individuals and units assigned to this mission was made in fiscal year 1965. All items needed for training were made available, and newer models were replacing older weapons. Additional A-4 Skyhawks and F-8 Crusaders were transferred to Marine Corps air reserve squadrons. Weapons and equipment delivered to ground units included the new M-109 155-mm., self-propelled howitzer, used in regular Marine artillery battalions, and modernized 106-mm., self-propelled rifles.

The reserve components of the Air Force, as previously mentioned, provided extensive support to the active forces during the year while increasing their unit readiness. In the area of air defense, for example, crews from 22 Air National Guard squadrons flew about 30,000 hours and completed more than 38,500 interception sorties as an integral part of the operations of the Air Defense Command. In support of the general purpose forces, Guard and Air Force Reserve units carried out tactical and airlift missions for Army and Air Force elements participating in training exercises. Air Force Reserve heavy troop carrier aircraft logged more than 11 million ton-miles to overseas destinations for MATS. To support operations in the Dominican Republic, for example, volunteer Air Force Reserve crews flew nearly 1,800 sorties during May and June 1965, providing an airlift of more than 4 million passenger-miles and almost 5 million ton-miles.

Air defense units of the Air National Guard continued their transition to the F-102 and the phaseout of the F-86's and F-100's as the force structure was gradually reduced in line with the declining bomber threat. The number of tactical Guard squadrons rose with the transfer from the active forces of additional F-84 and F-100 fighters and KC-97 tankers. The heavy troop carrier squadrons of the Air Force Reserve increased from five to six, as a C-123 assault unit was converted to C-124's. A change in operational requirements permitted the cancellation of the Air Force Reserve postattack recovery program; the reservists affected by this change were given the opportunity to transfer to vacancies in other units or to continue their reserve training as individuals.

Defense Space Program

The Defense portion of the National Space Program is designed to explore the possible uses of the space environment for military purposes and to complement the work of NASA in those fields in which the military Services have achieved a high degree of technical competence. All Defense projects, in order to be approved, must show a distinct promise of enhancing our military effectiveness and mesh with the efforts of other agencies in our integrated national program. Nearly \$1.6 billion was devoted to the Defense space effort in fiscal year 1965, about the same as in the preceding year.

The potential role of the Manned Orbiting Laboratory (MOL) received major attention during the year. The experiments to be undertaken and the configuration of the system were further analyzed. The major characteristics of the MOL project were reconfirmed—support for at least two men in orbit for 30 days, a capability for extensive extra-vehicular activity, precise attitude control, and safe crew ascent

and descent. Design studies were requested from industry to obtain refined information on costs and technology and a fourfold increase in the MOL effort was projected in the Defense budget for fiscal year 1966. While the Department of Defense reviewed the NASA experience with its GEMINI and APOLLO programs for possible application to the MOL project, NASA officials studied the scientific experiments that the new Defense project might undertake in support of their program.

The TITAN-IIIIC booster was chosen as the MOL launching vehicle. Composed of the first and second stages of a modified TITAN-II, a new restartable upper stage or transtage, a control module, and two "strap-on" 120-inch diameter solid propellant rocket motors, the TITAN-IIIIC is designed to place about 25,000 pounds into a 100-mile orbit. The first full TITAN-IIIIC test occurred June 18, 1965, and went off without a flaw, placing an inert satellite weighing over 21,000 pounds into a nearly circular orbit.

Unmanned space projects to improve our military capabilities were carried on in such fields as communications, navigation, geodesy, and the detection of nuclear explosions.

The decision to develop an Initial Defense Communications Satellite (IDCS) system was announced on July 15, 1964. Studies of alternatives for achieving this initial capability resulted in a decision to use the TITAN-IIIIC as a launch vehicle, rather than the ATLAS-AGENA, and to place the entire system of 24 satellites into a high random equatorial orbit with only three launches of eight satellites each. Concurrent with the IDCS development, research continued on advanced satellites with longer life expectancy and greater traffic-handling capabilities. The award of design study contracts for an advanced system was announced in June 1965. Additional communications capabilities are expected through the transfer from NASA to Defense of SYNCOM II and SYNCOM III, two experimental communications satellites that had served the original research purposes for which they had been launched in 1963 and 1964.

A military navigational satellite system started to function on July 15, 1964, to provide surface ships and submarines with an extremely accurate, all-weather means of determining their position at sea. This system was subsequently expanded to include three satellites, two operating with solar cells and the third using a radioisotope power source. Further improvements in the precision and reliability of the system were under study, with NASA evaluating its potential use by the maritime industry.

Geodetic research projects of the Army, Navy, and Air Force were carried out in line with a joint program developed by NASA and the Departments of Commerce and Defense. The Navy's satellite tracking

system gathered further data on the size, shape, and gravitational field of the earth, while the Army's SECOR project, using different techniques, contributed to the same objectives and pinpointed selected locations for mapping purposes.

The use of satellites for nuclear test detection has been mentioned earlier in connection with the test ban treaty safeguards.

The National Space Program is monitored by the National Aeronautics and Space Council, headed by the Vice President, to make certain that the programs of the various Federal agencies avoid duplication and form an integrated whole. With NASA and the Department of Defense responsible for most of the national effort—73 percent and 23 percent, respectively—the space activities of these two agencies require special coordination for the resolution of common problems and the provision of mutual support. The interchange of personnel includes the assignment of over 200 military officers to NASA. Test ranges and tracking facilities are used jointly and launch vehicles made available when required. Research results are exchanged or obtained through joint projects. The Aeronautics and Astronautics Coordinating Board established by the two agencies, as well as frequent meetings between key officials, continued to assure that maximum interagency cooperation was achieved during fiscal year 1965.

Test Ban Treaty Safeguards

The Department of Defense, in cooperation with the Atomic Energy Commission (AEC), undertook the maintenance of four specific safeguards in connection with the approval of the 1963 Nuclear Test Ban Treaty prohibiting nuclear tests in outer space, in the atmosphere, and under water. These safeguards provide for: (1) A comprehensive underground nuclear test program, (2) support of effective laboratory research in nuclear technology, (3) readiness to resume atmospheric testing whenever required, and (4) an improved capability to detect and monitor nuclear detonations of all types. A total of about \$261 million of Defense funds were allocated to these purposes in fiscal year 1965.

A wide range of underground tests were conducted during the year, including experiments not previously considered feasible. Exclusive of four events connected with the Plowshare Program for the peaceful uses of nuclear explosives, 28 underground nuclear detonations were announced—27 at the Nevada Test Site and 1 near Hattiesburg, Miss. The AEC sponsored 21 of the 28 tests, the Department of Defense 6, and 1 was a combined United States-United Kingdom experiment. The AEC detonations were focused on weapons development, including the evaluation of advanced concepts and technology and the testing

of the reliability and safety of nuclear weapons in different environments. Most of the Defense Department's effort, for which about \$21 million was allocated in 1965, was directed toward extending our knowledge of weapon-generated effects, such as that of ground shock on hardened missile sites and of transient radiation on missile systems, communications, and electrical equipment. High explosive tests, each involving the detonation of 500 tons of TNT, provided additional weapons-effect information.

In support of the second safeguard, maintenance of laboratory facilities and programs, approximately \$56 million was expended during fiscal year 1965. Laboratory simulation of weapons effects and analytical and theoretical studies of nuclear phenomena extended the knowledge derived from underground tests. The weapons development effort included research to perfect components such as fuzing and firing devices, retardation systems, and ballistic cases for warheads. This nuclear technology research was guided by a highly qualified staff of scientists in laboratories operated by the Army, Navy, Air Force, and the Defense Atomic Support Agency.

Responsibility for maintaining our readiness to resume testing in the atmosphere has been assigned to Joint Task Force 8. The key construction projects at the Pacific test site were substantially completed during the year, and long leadtime test equipment was being procured. The successful conduct of two readiness exercises indicated that the United States would be able to resume the atmospheric testing of operational systems within 2 to 3 months and weapons effects testing within 6 months. About \$72 million was required for this program during the fiscal year.

The operation and improvement of the Atomic Energy Detection System (AEDS) and the development of additional monitoring devices through the VELA program of the Advanced Research Projects Agency required the largest commitment of resources—\$112 million. AEDS equipment was being modernized and the system expanded through the establishment of additional detection stations. The VELA program, conducted in close cooperation with the AEC, is designed to develop advanced surveillance systems for detecting, locating, and identifying nuclear detonations wherever they may occur. Additional data on the propagation of seismic waves continued to be obtained from the test series at the Nevada test site and the Hattiesburg, Miss., test of October 22, 1964, which was specifically designed for the VELA program. This shot demonstrated the difference in the magnitude of seismic waves created by explosions in old sedimentary regions and in geologically young mountainous regions and confirmed theoretical calculations of the expected results of tamped explosions. Construction was also started in eastern Montana on a large array of 525 seismome-

ters spaced over an area of 150 by 150 miles, representing a new approach to measuring and identifying seismic events.

Two VELA nuclear detection satellites were launched in July 1964, bringing to four the number of such satellites in space. Operating in nearly circular orbits 60,000 nautical miles from the earth, these sensors are providing useful information on space background radiation of general scientific interest as well as an interim nuclear test surveillance capability for high altitude and deep space detonations. Supplementing the latter capability, research was also being directed toward the improvement of optical, acoustical, and electromagnetic sensors operating from ground stations.

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Notwithstanding the test ban treaty, another nation joined the nuclear "club" in fiscal year 1965. Communist China, which refused to adhere to the treaty, detonated two nuclear devices in the atmosphere—the first on October 14, 1964, and the second on May 14, 1965. These two tests demonstrated the ability of the Chinese to produce U-235, and we can expect them to attempt to develop a thermonuclear device as soon as possible.

III. Defense Management

The first responsibility of the Department of Defense is to determine the military power required to support our foreign policy and insure our own security; the second is to organize, arm, and operate the forces needed to provide that power as efficiently and economically as possible. Even a country as rich as ours cannot afford to squander resources on unneeded weapons and inefficient operating procedures. When wasteful procurement and mismanagement occur in the Defense program, not only is the national security impaired, but the ability of our society to make progress toward achieving other highly important and desirable goals is directly impeded. This simple economic truth underlies the Department's aggressive search for improved methods to determine optimum military strategies and force structures as well as greater organizational and operational effectiveness.

Consolidation of support functions formerly diffused among the many elements of the Department has proved particularly helpful in raising the efficiency of operations and eliminating unnecessary duplication. The establishment of a single agency to do the work of several also permits more decisionmaking to take place at lower management echelons, since problems of coordination and standardization do not have to be referred to higher authorities for resolution. In keeping with this philosophy, action was started during the year to consolidate the contract administration field offices of the military departments, to set up a single Defense Contract Audit Agency, and to merge the functions of traffic management and common-user ocean terminal operation into a single organization.

Greater economy and efficiency, of course, do not depend solely on organizational changes. The Department's comprehensive cost reduction program, for example, has continued to be highly successful motivating logistics management personnel at all levels to find better, and usually less costly, ways of performing the myriad operational and support functions. Savings of more than \$4.8 billion were realized during the year from this effort. In addition, the management of the Defense program has continued to benefit from such recent innovations as the integration of the planning-programing-budgeting process, the systematic analysis of weapon system and force structure alternatives, and contract definition of proposed engineering

development projects. Not only have these new approaches promoted operational economies, they have also, and perhaps more importantly, facilitated the flow of meaningful information to top-level decision-makers, thereby leading to better solutions to the many complex problems of national security.

The sheer magnitude of the resources being committed to national security—in terms of men, materiel, and money—as well as the complexity of the task would demand a major continuing management improvement effort even in an essentially static environment. Yet the Department of Defense operates in an environment of great uncertainty and constant change—in the threat it must counter, in the technology from which its weapons come, and in the international arena. Prompt and successful adjustment to the dynamics of each new situation is highly important and thus, for the Defense Department, the improvement of management techniques and of organizational arrangements remains a never-ending challenge.

Organization

The organization of the Department of Defense reflects a management philosophy that stresses the desirability of having decisions made at the lowest echelon that has the necessary ability and information to apply approved policy. To make such decentralization work in a large and complex undertaking like Defense, it is essential that responsibility be clearly delineated. To keep the centralized system operating effectively, the organization must be adjusted from time to time, not only because the Department is so large, complex, and geographically dispersed, but also because it must respond promptly to changes in a dynamic environment. Accordingly, some further organizational realignments were initiated during fiscal year 1965, within the over-all framework provided by the Defense Reorganization Act of 1958.

This law established the chain of command for the operational forces, running from the President and the Secretary of Defense through the Joint Chiefs of Staff to the eight unified and specified commanders who control most of the combatant units. During the late 1950's and early 1960's three new agencies were created within this chain of command to perform, on a Department-wide basis, certain special functions essential to the direction, control, and operations of the armed forces—i.e., the Defense Atomic Support Agency (1959), the Defense Communications Agency (1960), and the Defense Intelligence Agency (1961). Paralleling this operational chain of command is another channel of control running from the President and the Secretary of Defense to the Secretaries of the military depart-

ments, who are responsible for such support functions as recruiting, training, and supplying the operational forces. In 1961, one interdepartmental organization, the Defense Supply Agency, (DSA), had been established to manage, on behalf of the Secretary of Defense, the common supplies and logistical services required by two or more of the military departments. Also by the beginning of 1965, each military department had taken action to clarify the lines of authority and responsibility for its own internal logistical support activities—the Air Force in 1961, the Army in 1962, and the Navy in 1963.

In fiscal year 1965 only one organizational change was made with respect to the operational chain of command. On December 12, 1964, a new system of designating a "senior" military attaché at each U.S. embassy was initiated. This senior military representative reports to the Secretary through the Joint Chiefs of Staff and is responsible for coordinating and supervising the work of all the U.S. military attachés stationed in a particular country. With respect to logistics support, two new functional consolidations were announced, one involving the management of military land transportation services and ocean terminals in the continental United States and the other the auditing of defense contracts. Two other organizational realignments—the consolidation of contract administration services and the establishment of the Office of the Assistant Secretary of Defense (Administration), which were initiated towards the end of fiscal year 1964—were either completely or substantially implemented during fiscal year 1965.

The establishment of a new single manager, the Military Traffic Management and Terminal Service (MTMTS) was announced on November 19, 1964. It was to be set up with multi-Service staffing within the Department of the Army and was to be responsible for the consolidated procurement of transportation services and the operation of common-user ocean terminals within the continental United States. This realignment was a further step in the evolution of Defense transportation management. Previous efforts had resulted in the consolidation of responsibility for domestic freight and passenger traffic management, transportation of household goods, and transportation mobilization planning in the Defense Traffic Management Service (DTMS) of the Defense Supply Agency.

MTMTS was formally established on February 15, 1965, and assumed command not only of the functions previously assigned to DTMS, but also of the management of three Army terminal commands and six ocean terminals. MTMTS, unlike DTMS, is responsible for a shipment from its point of origin to the air terminals in the case of air shipments, and through the ocean terminals in the case of ocean shipments. As a consequence, it will be able to combine Defense Department shipments at these terminals, regardless of their point

of origin or of the originating military Service, thereby permitting important economies. The new agency became fully operational on July 1, 1965.

Similarly, the decision, promulgated on December 12, 1964, to establish the Defense Contract Audit Agency (DCAA), is designed to produce more uniformity in Defense procedures, more consistent advice to contractors, and lower operating costs to both. In the past, the auditing of military contracts had been performed by each military department. Defense contractors now will have to deal with only one audit agency. This consolidation is ultimately expected to reduce overall manpower requirements by about 175 with attendant annual savings to the taxpayer of \$1.8 million. The new agency will audit some \$45 billion of contracts and contract proposals each year for the Department of Defense, the National Aeronautics and Space Administration, the Department of Health, Education, and Welfare, and the National Science Foundation. DCAA, which will be supervised by the Assistant Secretary of Defense (Comptroller), was prepared to begin the technical direction of contract auditing at the close of fiscal year 1965 and will become fully operational during fiscal year 1966.

This consolidation of the contract auditing function was closely related to an earlier decision, announced in June 1964, to establish an inter-Service activity in DSA to provide certain contract administration services. While the military departments will continue to award procurement contracts and to monitor those for major weapon systems, ships, construction, production facilities, and research, the new Defense Contract Administration Services will be responsible for pre-award surveys of contractor facilities, quality assurance and other inspections, payment of contractors, the industrial security program, and the monitoring of contracts awarded by DSA such as those for perishable subsistence items. These functions will be administered through 11 regional offices, 4 of which had been activated by the close of fiscal year 1965, with the remainder scheduled for fiscal year 1966. About 10 percent fewer personnel will be required through the consolidation of these services, with a resultant annual savings estimated at about \$19 million.

Staffing of the Office of the Assistant Secretary of Defense (Administration), a new position announced at the close of fiscal year 1964, was completed during 1965. In addition to undertaking organizational and management studies of the Department and providing administrative support to the Office of the Secretary of Defense, this new staff agency also includes a directorate of inspection services. Chartered in March 1965, this directorate performs investigative and inspection services for the Secretary of Defense on an inter-Service basis.

The Assistant Secretary for Administration also oversees and coordinates Defense Department activities relating to the operation of the National Communications System, for which the Secretary of Defense is executive agent for the President.

Planning-Programing-Budgeting

First installed in the summer of 1961, the integrated decisionmaking process known as the planning-programing-budgeting system (PBBS) continued to be refined and improved during fiscal year 1965. This process, together with the greatly increased use of systems analysis, or cost-benefit studies, and new techniques for making research and development decisions, has contributed importantly to the more effective utilization of the vast resources being applied to our national security program.

While programing and systems analysis have fully proved their basic value to Defense decisionmaking, some problems continue to be encountered which diminish their effectiveness. One which affects both is the need for more accurate cost data. In recent years a series of projects has been initiated to help overcome this deficiency. For example, during fiscal year 1965 work continued on the development of a better reporting system for defense contractors and improved analytical techniques to provide more reliable and accurate projections of the probable costs of major weapon systems. New reporting procedures were discussed with industry during the year and were scheduled to become effective in 1966. Better data on the actual costs of operating and maintaining existing weapon systems are also needed, and measures to provide this information were actively studied during fiscal year 1965.

Another long standing problem concerns the inexorable discipline exerted by the calendar, which, although not unique to Defense decisionmaking, can be particularly troublesome when there are so many people involved in as many decisions as there are in the military budget. For example, it has proven difficult to schedule the completion of all the various studies and planning efforts so that they will be both current and ready when the time comes to revise the Five-Year Force Structure and Financial Program in anticipation of work beginning on the annual budget. As a result, top management reviews of proposed program changes and of the budget proposals have tended to overlap, making it difficult to coordinate decisions on both. However, more realistic, less constraining schedules have now been developed to help meet this problem.

Despite these remaining problems, there can be no question about the impact of these financial management innovations of recent years.

As testimony to the important contribution that the planning-programming-budgeting system has made, President Johnson, shortly after the close of the fiscal year, directed that it be introduced throughout the executive branch. In his words, "Good government demands excellence. It demands the fullest value for each dollar spent. It demands that we take advantage of the most modern management techniques." These goals are constantly being sought in the Department of Defense.

The Services' initial budget requests for fiscal year 1965, including military functions, military assistance, and civil defense, totaled in excess of \$61 billion. After executive branch review in the fall of 1963, the President transmitted to the Congress a budget which included \$50,908 million of new obligational availability for the Department of Defense, excluding the cost of proposed pay raises for both military and civilian personnel. A budget amendment of \$55 million was forwarded in May 1964 to meet increased military assistance needs in Vietnam, raising the total requested to \$50,963 million. (Ultimately, the President also exercised his authority to use \$75 million of Defense Department stocks for the Military Assistance Program with reimbursement from subsequent appropriations to liquidate the authorization.)

In order to meet the additional costs of the higher military and civilian compensation scales voted by the Congress in the previous year, the Administration requested supplemental fiscal year 1965 appropriations totaling \$230 million in March 1965; these funds were voted in full the following month. By this time it had become clear that the higher tempo of activity in Vietnam and the need to take certain preparatory production measures, which could not be foreseen when the budget was originally prepared, would require still more supplemental funds in fiscal year 1965. Therefore, on May 4, 1965, the President requested that an additional \$700 million be appropriated to a Southeast Asia Emergency Fund; these monies were appropriated in full 3 days later. They were subsequently allocated as follows: \$369 million for ammunition and ordnance, \$152 million for operation and maintenance expenses, \$108 million for Southeast Asia military construction, \$55 million for aircraft, and \$16 million for other operating costs.

These two supplementals (plus the \$75 million of contract authority for military assistance) raised to \$51,968 million the amount of new obligational availability requested for fiscal year 1965; the Congress provided a total of about \$50,687 million, a reduction of about 2.5 percent. Of this amount, \$49,557 million was for military functions and \$1,130 million for military assistance programs, as compared with \$50,243 million and \$1 billion, respectively—a total of \$51,243 million for the preceding fiscal year.

Reflecting the substantial accomplishment of the force structure and readiness buildup begun in 1961, obligations and expenditures during the year also were below those of 1964, with lower procurement programs more than offsetting higher operating costs. Obligations during fiscal year 1965 totaled \$54,329 million and expenditures \$47,401 million as compared with \$55,187 million and \$51,245 million, respectively, during fiscal year 1964. (See tables 5 and 6.)

The fiscal year 1966 Defense budget, totaling \$49,035 million in new obligational availability (including \$470 million by transfers from the Department of Defense revolving funds), was transmitted to the Congress in January 1965, after the Services' original requests had been reduced by about \$8 billion during the budget review. Action on this request was still pending at the close of fiscal year 1965.

Research and Development

One of the principal distinguishing characteristics of the national security problem of our time, in contrast to that of earlier generations, is the central place occupied by the research and development function. More and more, the quality of the security offered by our military programs depends on the research and development efforts of 5 to 10 years past. Our security in the decade of the 1970's will depend importantly on the skill, vigor, and imagination with which our current R&D programs are managed. Effective management in this area must be concerned with ensuring: (1) That no project essential to our future military security is neglected; and (2) that whatever the level of resources made available for Defense-related research and development—including scientific manpower, facilities, and funds—such resources are used so as to maximize the benefits received. Obviously, considering the highly unpredictable nature of research itself and the great uncertainties involved in attempting to plan for an only dimly perceived future, there is much room for judgment in this area of decision-making. One of the major efforts of the past few years has been to develop better data, analytical techniques, and decisionmaking procedures to supplement this judgment.

To assure the timely availability of new weapon systems and equipment, nearly \$33 billion has been committed to research, development, test, and evaluation (RDT&E) activities of the Defense Department during the past 5 years. Another \$2.5 billion has been provided for support of these activities—i.e., construction and operation of laboratories and test sites, pay and allowances of military personnel assigned to them, and similar items not financed in RDT&E appropriations. As might be expected, a large portion of these funds was devoted to the development of strategic weapon systems and the military space pro-

gram. For example, over the past decade, over \$10 billion has been invested in developing strategic missiles alone. Still more funds, of course, are being applied to the follow-on missile systems, e.g., MINUTEMAN II and POSEIDON, as discussed earlier in this report, and to other missile-related projects, such as penetration aids. Since, however, our large past commitments in the strategic forces area are now maturing in the form of new systems, a greater share of R&D resources in the future will probably be devoted to the needs of the general purpose forces, including especially items related to counterinsurgency operations.

Effective R&D management also requires that continuous attention be given to the prompt elimination of those older projects which, with the passage of time and changed circumstances, no longer appear feasible or justified. This is especially true of projects that are about to enter the most costly phases of engineering development. In calendar years 1961 through 1964, 11 major development programs were terminated after nearly \$2.7 billion had been invested in them. While such cancellations cannot be avoided entirely, they can be drastically reduced by not starting large-scale development until the basic technology is in hand and adequate consideration is given to how a proposed system will be used, what it will cost, and whether the accomplishment of its mission justifies its cost in the light of other alternatives. Consequently, greater emphasis is now being placed on the relatively less costly phases of research, exploratory development, and advanced development in order to provide the necessary technological base before committing large sums to specific full-scale weapon development projects.

In addition, before a major new weapon system is placed into full-scale development, a series of concept formulation studies is performed by appropriate elements of the Department to evaluate its technological feasibility and operational desirability. Then, detailed program objectives, performance specifications, schedules, and cost estimates are established as firmly and realistically as possible through the contract definition process (formerly called the project definition phase). Contract definition is normally performed by industry, generally on a fully competitive basis with two or more contractors working closely with the Department. The result of this process is a reasonably definitive statement of the development work to be performed under the contract, thus permitting the award of more favorable, incentive-type contracts instead of the formerly used cost-plus-fixed-fee type which offered no motivation for good management and cost consciousness on the part of the developer. Contract definition is required for all projects estimated to cost more than \$25 million for development or \$100 million for production.

Management of projects of this magnitude, and of smaller ones having unusual importance or complexity, is being vested in a system or project manager who will be responsible for the direction, control, and successful accomplishment of the undertaking. While this management technique has been used extensively in the past, its application to all major Defense projects became mandatory in May 1965 with the promulgation of standardized policies and terms of reference for chartering the project management offices.

About two-thirds of the Department's research and development work—measured in terms of expenditures—is conducted by private industry and about 10 percent by colleges, universities, and other non-profit organizations. The remainder—nearly one-quarter of the total—is performed at laboratories and test sites operated by the various component organizations of the Department. The management of this in-house effort has received concerted attention in recent years in a continuing effort to upgrade its operational efficiency and increase its contribution to Defense technology. To this end, physical facilities and working conditions have been improved and more flexible funding arrangements have been developed to encourage greater creativity and innovation. Inter-Service cooperation in the use of in-house facilities has been increased to eliminate undesirable duplication and promote better utilization of scarce scientific and engineering talent. For example, the parachute test facility at El Centro, Calif., is being operated as a joint Navy-Air Force activity with Army participation, while the Army's laboratories at Natick, Mass., perform research on food processing, protective clothing, and other textiles on behalf of all the military Services.

The establishment of Joint Task Force 2 (JTF-2) in the summer of 1964 marked a further implementation of the principle of inter-Service cooperation in RDT&E activities. Reporting to the Joint Chiefs of Staff, JTF-2 plans and conducts controlled and instrumented field tests of offensive and defensive weapon systems and tactics in order to collect quantitative data on the relative effectiveness of different systems—information of a kind not obtainable through normal field tactical exercises or maneuvers. The first 3-month test series, which began in May 1965, was designed to measure the ability of several types of aircraft flown by average combat-ready crews to approach designated targets at low altitudes and varying speeds. Further tests under the auspices of JTF-2 are scheduled for the coming fiscal year.

More efficient and timely dissemination of the scientific and technical information produced by Defense research and development efforts was made possible during the year by the installation of a large-capacity computer at the Defense Documentation Center. The Center, a component of the DSA receiving over-all policy guidance from the

Office of the Director of Defense Research and Engineering, acquires technical reports from military laboratories and defense contractors, including nonprofit institutions, catalogs them, prepares brief summaries, and distributes listings of these summaries to the scientific community. Upon request, the Center provides copies of documents to qualified users. A new standardized set of control markings to govern distribution was prescribed in April 1965 to facilitate handling and wider dissemination. Under arrangements initiated in 1964 and completed during the current year, reports not containing classified or proprietary information are processed and distributed by the Department of Commerce. As a further aid in preventing unnecessary duplication, an improved automated management information and retrieval system was being developed for recording progress on current, as opposed to completed, research projects.

Manpower

The manpower policies of the Department of Defense have two main objectives: (1) To attract and retain highly competent military and civilian personnel; and (2) to utilize these valuable manpower resources with maximum effectiveness. Both of these objectives were advanced by personnel actions taken during fiscal year 1965.

To enhance the financial attractiveness of career service, compensation schedules for both military and civilian personnel were increased during the summer of 1964 and a second pay increment became effective a year later, shortly after the close of fiscal year 1965. Pay increases enacted since 1961 added about \$3.1 billion to the Defense budget for 1966. This sum is but one measure of the effort being made to get and hold good people. The degree of success achieved with respect to the second objective is reflected in the fact that far stronger and readier combat forces have been created and a more efficient supporting establishment has been provided with only a relatively small increase of 172,000 military personnel and a decrease of 48,000 civilians during the period June 30, 1961, to June 30, 1965.

Since 1962, the Department has conducted annual reviews of the military compensation system and has recommended adjustments as necessary to insure an adequate living standard for U.S. servicemen and their dependents. During 1962, housing allowances were increased by 20 percent. The following year, basic pay rates were raised by an average of 14.2 percent, with higher percentages concentrated at critical career points to encourage retention of junior officers, senior noncommissioned officers, and enlisted men completing their first tour of duty. The 1964 pay raise, which became effective on September 1, during fiscal year 1965, provided an across-the-board increase of 2.5

percent to all military personnel with more than 2 years of service and 8.5 percent to junior officers and warrant officers who had served less than 2 years.

These adjustments were in accord with President Johnson's statement that "changes in pay and allowances of members of the uniformed forces should keep pace with advances in the general economy." In order to correlate proposals for further increases in compensation rates with rates prevailing in the private economy, the President in January 1965 appointed a special panel to review the adequacy of Federal salary schedules for both military and civilian personnel.

In April, President Johnson forwarded to the Congress the panel's recommendations for an average increase of 4.8 percent for military personnel who had served for more than 2 years and of 2.7 percent for personnel with less than 2 years of service, and proposed an effective date of January 1, 1966. The annual cost of this pay raise was estimated at \$447 million. This proposal was still pending before the Congress at the end of fiscal year 1965.

To provide some special benefits for our men in combat, the President, on April 24, 1965, declared in an Executive order that Vietnam and adjacent waters were a combat zone, as defined in the Internal Revenue Code, thus exempting from Federal income tax all enlisted pay and \$200 monthly of officers' pay. The Congress, in May, authorized a dislocation allowance to assist dependents of military personnel ordered to evacuate from critical areas, e.g., Vietnam, following the attack on Pleiku. In June, the Defense directive governing combat pay was revised, authorizing the extension of this benefit to all U.S. military personnel serving in Vietnam, rather than just to those outside of Saigon, as well as to military personnel who may be exposed to hostile fire in other areas. Finally, shortly after the close of the fiscal year, legislation was enacted providing \$10,000 group life insurance coverage for all active duty military personnel.

Several other manpower actions were taken during the year to enhance the procurement and retention of qualified officer and enlisted personnel.

With respect to the procurement of junior officers, a number of programs initiated in earlier years were further developed in 1965. Additional facilities were constructed at the Air Force and Army military academies and, as part of a long-range expansion plan, the new classes which started in the summer of 1964 were about 200 men larger at each institution. Under this plan enrollment at each of the academies will be raised from about 2,600 to 4,400 by 1971—the level maintained at the Naval Academy.

During the spring of 1965, both the Army and Air Force announced plans to award contract scholarships to students in college level Re-

serve Officer Training Corps programs, as authorized by the ROTC Vitalization Act, approved on October 13, 1964. Shortly after the close of the fiscal year, the Army selected 600 students for the 2-year program and 400 for the 4-year program, while the Air Force selected 1,000 for 2-year scholarships. The Navy, which has utilized ROTC contracts since 1947, will continue its program at a level of about 5,100 students. In future years, the Army and Air Force will gradually enlarge their programs. During the summer of 1965, the Army and Air Force also conducted summer training programs to qualify students, from junior colleges and other institutions not offering ROTC programs, for enrollment in the new 2-year advanced ROTC course. Since the ROTC program is the largest single source of new officers, its continued vitality is of great importance to the military program. These recent measures should contribute significantly to that end.

With respect to enlisted personnel, the principal problem continued to be the low reenlistment rates of regulars completing their first term of service. Only about one-fourth of these "first-termers" chose to sign up for a second tour, in contrast to 85 percent in the case of career regulars, i.e., those in their second or later tours. Yet the Services' extensive needs for highly skilled technicians, who require long and costly training to become proficient in the operation and maintenance of modern weapon systems, have emphasized the need for qualified career personnel. One of the important factors in preventing a sharp drop in reenlistment rates during the past few years has been the regular and substantial increases in pay scales. In addition, the attractiveness of service careers has been enhanced by the use of proficiency pay, a special monthly bonus ranging from \$30 to \$100 for especially competent personnel, particularly those in critical occupational skill groups. On June 30, 1965, there were some 201,000 men receiving proficiency pay—nearly 9 percent of all enlisted personnel—about 3,000 more than a year earlier. Pay raises and proficiency pay have helped to sustain first-term reenlistment rates, but they have not been able to increase them. (See table 15.)

Of the total of 702,000 entrants on active duty during fiscal year 1965, the 247,000 men who reenlisted accounted for over 35 percent. Another 34,000, or 5 percent, were reservists. Of the remaining 421,000 men who came directly from civilian life, 103,000 were inducted through the Selective Service System and 318,000 volunteered, although many of the latter were motivated by the existence of the draft. One survey indicated that about 38 percent of first-term enlisted men and 41 percent of new officers would not have joined the armed forces had there been no draft, thereby underscoring the close relationship between the draft and recruitment programs.

While the importance of Selective Service in meeting military manpower requirements was widely recognized, the problem of equity in draft selection became a matter of increasing concern. In April 1964, the President directed the Department of Defense to undertake a comprehensive reexamination of the draft system and related military manpower policies. Other Federal agencies, such as the Bureau of Census, the Departments of Labor and of Health, Education, and Welfare, and the Selective Service System participated in this study, which was still being pursued at the end of fiscal year 1965.

The continued effort of the Department to increase voluntary enlistments was reflected in the Special Training and Enlistment Program (STEP) that was intended to provide remedial treatment or additional training for volunteers who failed to meet minimum medical or educational standards, but whose deficiencies could be corrected during a 14-week basic training course, about 6 weeks longer than normal. This specific proposal, however, failed to obtain Congressional approval.

The limited availability of housing within reasonable commuting distance of many duty stations—at rentals within the budgets of military families—has long been a problem for members of the armed forces. To help meet this need by supplementing community resources, the Department in 1963 initiated a 5-year program to construct 62,100 additional on-base family quarters using appropriated funds. While recognizing the requirement, the Congress has been reluctant to proceed with construction at the pace recommended by the Department. Whereas the Department requested authorization and funds for 16,645 units in fiscal year 1963, the Congress provided funds for only 7,500. Of the 12,100 units requested for 1964, the Congress approved 7,500, and of the 12,500 units requested for 1965, the Congress provided 8,250. The Department reiterated its request for 12,500 units in the fiscal year 1966 budget that was presented to the Congress in January 1965.

The Department's ability to attract and retain competent civilian employees has also been greatly aided in recent years by the measures taken to bring Federal salaries into balance with those in the private sector of the economy. Thus, the Federal Employees Salary Act of 1962 provided for a two-step pay increase, the first averaging 5.5 percent and effective in October 1962, and the second of 4.1 percent effective in January 1964. A further pay raise, enacted in August 1964 retroactively effective from the previous July, averaged 3 percent for those in the lower and intermediate civil service grades, with higher percentages for those in the upper grades. Again, in January 1965, the President requested the Folsom Panel on Federal Salaries to review the progress made toward achieving the goal of the comparabil-

ity between Federal and private sector salaries. In May the President endorsed the panel's recommendation for a civil service pay raise of 3 percent, to become effective on January 1, 1966. As of the end of the fiscal year, this proposal was still pending before the Congress.

Concurrently with these actions to improve the attractiveness of Federal service, the Department continued its effort to improve its utilization of available manpower. The appropriateness of military and civilian personnel were reexamined as part of the draft study and recommendations were being developed by the close of the fiscal year looking toward greater use of civilians in support-type activities. In addition, a comprehensive survey was undertaken of the policies governing the contracting for technical and support services from industry. While it was found that such contract services were frequently advantageous to the Government, some situations were discovered where conversion to in-house work would be more economical. It was also concluded that the military departments should develop the capability early in the life cycle of a new weapon system to maintain and operate it primarily with military personnel and civil servants, rather than contract technicians. As a result, a 3-year program was launched shortly after the close of the fiscal year to review support activities on a case-by-case basis. It is estimated that under this program about 8,300 contract technicians might eventually be replaced by about 7,500 civil servants and 800 military personnel, with possible annual savings of about \$30 million.

The increasing productivity of the Department's civilian employees was reflected in an over-all decline in their number during fiscal year 1965. On June 30, 1965, there were some 7,000 fewer blue collar craftsmen employed at arsenals, naval shipyards, and other military installations than a year earlier. During the same period, there was a decline of nearly 10,000 in the number of foreign nationals employed by the Defense Department overseas under contractual arrangements with friendly governments. While these reductions were partially offset by an increase of 11,000 in the number of salaried civil servants, total Defense Department civilian manpower decreased during the year by nearly 6,000—from 1,170,000 to 1,164,000. (See table 18.)

Under the manpower policies of the Department, civilian and military personnel have long been guaranteed equality of opportunity without regard to race, creed, color, or national origin. These policies were reaffirmed and given added emphasis during the year, following the President's approval of the Civil Rights Act of 1964. Military commanders were reminded of their continuing responsibility to foster equality of treatment for all military personnel and to support servicemen in the lawful assertion of the rights guaranteed them by the Constitution, the Civil Rights Act, and other legislation. Policies and

directives governing equal employment opportunities in the armed forces, in the Department as a whole, and at facilities working on defense contracts were reviewed and brought up to date to reflect recent legislation and Executive orders. In addition, the Department issued new guidelines in accordance with the Civil Rights Act to extend the principle of nondiscrimination to other Defense-related programs receiving Federal financial assistance, including, for example, the Army and Air National Guard, the National Defense Cadet Corps, the Civil Air Patrol, and Office of Civil Defense programs.

Within the armed forces, particular attention was given to the persistent and pervasive problem of securing adequate off-base housing for Negro service personnel and their families. During the fiscal year the three military departments issued new instructions concerning the responsibilities of military commanders to use their good offices and leadership to arrange for such housing in nearby communities. Moreover, in the summer of 1964, the Department of Defense enlisted the assistance of 24 State civil rights commissions in this effort and worked closely with the Federal Housing Administration, which undertook in February 1965 to provide base commanders with lists of Federally financed housing subject to nondiscrimination clauses. Nevertheless, despite these efforts to bring Federal and local resources to bear on this problem, minority group servicemen continued to report difficulties in finding suitable housing near some military installations in all sections of the country. As inadequate housing and involuntary family separation are detrimental to morale, and thereby performance, the Department will continue to seek to overcome community resistance to open housing for all service personnel.

Logistics

The logistics support activities of the Department of Defense exist for one purpose—to provide our combat forces with the facilities, equipment, and supplies they need to carry out their assigned missions. The great increases in combat capabilities achieved during recent years, as detailed earlier in this report, provide the best measure of how effectively these logistics functions have been discharged. The performance of these functions entails a multitude of tasks and requires vast resources, both human and material. The tasks are frequently complex; the resources are always costly. Their effective management represents a continuing challenge of the first magnitude. Moreover, while the most important result of better management is more effective support of the combat forces, the monetary savings can also be substantial. Indeed, almost every logistics management improvement yields both more economy and more efficiency. It was to

serve both of these objectives that the Defense Department's cost reduction program was launched.

The originally announced goal of the program was to lower the annual cost of logistic support by \$3.1 billion within 5 years—that is, by June 30, 1967. One year's experience with the program, however, indicated that the potential for savings had been underestimated, and so in July 1963 the goal was increased to \$4.0 billion. During the next 12 months—i.e., fiscal year 1964—actual economies of \$2.8 billion were realized and further likely areas for improvement were identified. Therefore, at the beginning of fiscal year 1965, the program was projected an additional year, to 1968, and the savings target increased to \$4.6 billion. The results obtained in 1965 again far exceeded initial expectations, totaling \$4.8 billion.

These cost reduction savings are the product of a carefully planned and audited program that has successfully enlisted the continuing efforts of tens of thousands of military and civilian personnel at all levels of management within the Department of Defense. To underscore the importance attached to the program by top management, a special effort has been made to give proper recognition to outstanding achievements in reducing costs. This is done at all levels of command, but it culminates in an annual ceremony in Washington where the President presents certificates of appreciation for singularly important contributions. On July 20, 1965, 17 individuals were honored in this way.

During fiscal year 1965, cost reduction procedures were extended to include the Military Assistance Program, thus bringing to 28 the number of major areas of effort. These areas are grouped under three main headings: (1) Buying only what we need, (2) buying at the lowest sound price, and (3) reducing operating costs. (See table 27.)

Buying Only What We Need

The logistics cycle starts with the calculation of requirements, and it is at this point that the future costs of the entire logistics system are largely determined. With combat readiness the primary objective, the natural tendency among logistics managers has been to err on the side of having too much on hand rather than too little in order to guard against the possibilities of failure "for want of a nail." Thus, requirements tend to be overstated, supplies hoarded or not reported, safety stocks pyramided by successive echelons, and performance standards established without regard to real need. The product of these actions is the accumulation of material in excess of true requirements, which, in turn, results in unnecessary costs for transportation, for storage facilities, and for handling, and, finally, generates surplus inventories that can be disposed of at only a fraction of original acquisition prices.

To combat this problem, the cost reduction program has emphasized better planning and more realistic calculation of supply requirements; the increased use of substitutes already on hand in lieu of new procurement; the elimination from the Department's product specifications of "goldplating," i.e., standards of performance, reliability, or durability greater than those actually required for the particular military mission involved; and the reduction of the number of different items in military supply systems. Together, actions in these areas accounted for more than \$2.5 billion of savings achieved during fiscal year 1965.

By far the largest part of these savings resulted from better calculation of requirements. Contributing significantly to this end has been the planning-programing-budgeting system mentioned earlier in this report, which has helped greatly in developing the necessary internal balance among the many different elements of the military program and in relating specific supply requirements directly to both present and future needs. In addition, thousands of individual item reviews at all levels have helped to produce more accurate procurement objectives for specific high cost items. For example, more reliance on post-D-day production has been substituted for pre-D-day stockpiling wherever feasible; more accurate consumption and wear-out rates computed by automatic data processing equipment have been used instead of across-the-board standard rates; and depot and pipeline requirements have been reduced by shifting to high-speed air transportation for delivering high cost items.

Buying only what we need also calls for making maximum use of excess stocks already on hand. Improved inter-Service screening procedures for matching proposed purchases against available assets have steadily increased the value of such assets being reutilized in lieu of turning to new procurement. During fiscal year 1961, when long supply inventories were valued at nearly \$13 billion, less than \$1 billion worth was returned to productive uses, but by 1965, with such inventories reduced to \$10 billion, reutilization totaled nearly \$1.5 billion.

The continuing review of standards and specifications for weapons and equipment to eliminate costly characteristics which do not add to military effectiveness has proved another prolific source of savings. Consequently, the value engineering staffs of the Department were expanded during the year so as to permit the scope of these reviews to be broadened; in addition, new types of contracts were employed which provide monetary incentives to contractors and subcontractors to join in seeking better designed equipment and more economical manufacturing processes. More than twice as many acceptable proposals for eliminating goldplating were received from industry during 1965 as during the preceding year.

Needless proliferation of types, colors, sizes, finishes, and other minor variations have in the past added substantially to storage and handling costs for military equipment and supplies. The prevention of further unnecessary variations in new items entering the inventory and the purging from existing stocks of duplicative items have, therefore, been important objectives of the cost reduction program. The Technical Data and Standardization Council and the Office of Technical Data and Standardization, established late in fiscal year 1964, proved to be effective during 1965 in coordinating standardization programs and in promoting the use of standardized parts and components early in the development cycle of new weapon systems. In addition, an automated item entry control system was being devised by DSA to keep new items out of the supply systems when satisfactory substitutes are already available in the inventory.

As part of the standardization program, a phased review of all military specifications is being undertaken. The first step, validation of specifications more than 10 years old, was completed during the year, with half proving to be no longer required and another quarter being identified as in need of updating. The second phase of this review, focusing on specifications 7 to 10 years old, was about half finished by the end of fiscal year 1965, and of those reexamined about 35 percent were canceled.

These actions, together with other standardization reviews, resulted in a net reduction of nearly 112,000 Defense-related items in the Federal Supply Catalog. Despite the continuing introduction of new weapons and equipment, the number of these items, which had totaled nearly 4 million in 1962, had been cut back to about 3.8 million by June 30, 1965. During the same period, the number of items used by more than one military Service has steadily increased. (See table 36.)

Buying at the Lowest Sound Price

Much progress has been made since 1961 in improving procurement procedures and in devising new ways to obtain the economic benefits which the free enterprise system provides. Savings from these efforts totaled nearly \$1.2 billion during fiscal year 1965 alone.

A wide range of measures has contributed to these results. More than 23,000 military and civilian personnel have received training through the 26 joint logistics management courses conducted since 1961 by the Defense Supply Agency and the military departments. To meet the Department's long-range needs for trained and qualified procurement experts, a management training program for career civilians was established in May 1965. Better advanced planning has been developed which attempts to look ahead over the entire life cycle of an item from initial conception through development and purchase, and

then determine the best time to introduce competition and the best type of contract to achieve it. Requirements for technical data from contractors were intensively reviewed, both to prevent the purchase of unnecessary information and to ensure the timely availability of the specifications and drawings essential for competitive procurement. Major weapon systems, not readily adaptable to competitive procurement because of the large start-up costs and long leadtimes involved, have been carefully examined in order to break out components and subsystems that can be bought separately on a competitive basis.

A major goal of the cost reduction program has been to increase the share of contracts awarded through competitive procedures, since every dollar shifted from noncompetitive awards saves the taxpayer an estimated 25 cents. During fiscal year 1965, contracts valued at nearly \$2.6 billion were so shifted. The proportion of contracts awarded following price competition increased from 32.9 percent (in terms of dollar value) in 1961 to 43.4 percent in 1965. Awards after formal advertising, the most stringent type of competition, also increased spectacularly—from 11.9 percent in 1961 to 17.6 percent in 1965. A major breakthrough in competitive procurement was achieved during fiscal year 1965 with the development of a new concept—the total package procurement contract—which is being used in the case of the C-5A transport aircraft. Competitors were invited to bid on two single contracts—one for the aircraft and the second for the engine—which will cover development, production, ground support equipment, and spare parts for the entire life cycle of this aircraft. The previous practice of awarding a development contract after technical or design competition and then a second contract for production, usually precluded competition on the production quantity. The contractor who won the development contract naturally enjoyed a great advantage in bidding for the production contract because he had already amortized large engineering and tooling costs. Furthermore, contractors often offered unrealistically low prices for the development phase in the expectation of making up losses and generating a profit during the production phase. The total package contract should do much to correct both of these problems.

The second major effort in this area of the cost reduction program is concerned with shifting from cost-plus-fixed-fee (CPFF) contracts to fixed-fee and incentive-type contracts. CPFF contracts provide neither a reward for efficient management nor a penalty for poor management, with the result that expensive cost overruns have frequently occurred where this type of arrangement prevailed. By March 1961, the proportion of CPFF awards had climbed to 38 percent of the total in dollar value but by the end of fiscal year 1965 their use had been reduced to only 9.4 percent. Approximately \$6.3 billion in contract awards were

shifted away from CPFF to other types in fiscal year 1965, with a saving to the Government of at least 10 cents on the dollar.

Another procurement technique which is yielding significant savings is the multiyear contract covering several years' requirements for an item with a recurring demand. Here, the contractor can offer a lower price because he avoids annual startup costs and is assured of greater volume. For example, by using multiyear contracts, the unit price for the bomb-ejector racks of a fighter aircraft was reduced from \$1,313 to \$534, with a savings of nearly \$2.8 million, and the cost of R-1051/URR receiver sets dropped from \$2,500 to \$1,708, saving nearly \$1.8 million.

While hewing fully to the principle of buying at the lowest sound price, the Defense Department also continued to foster opportunities for small business firms and firms with plants located in areas of substantial unemployment to participate in defense production. Of the \$25.3 billion in prime contracts awarded to business firms for work in the United States during fiscal year 1965, \$4.9 billion, or 19.6 percent, was awarded to small businesses—an increase of \$0.4 billion and 2.4 percentage points over 1964 levels. Small business firms also received an additional \$3.5 billion in commitments during the year from 601 large prime contractors under Defense Department policies which encourage large defense contractors to give small firms an opportunity to compete for subcontracts. Firms, large and small, in areas of substantial unemployment received \$109 million in defense contracts through special programs of set-asides and tie-bid preferences. Total contract awards to businesses in such areas amounted to nearly \$4.2 billion, slightly more than in the preceding year, even though the number of depressed areas had declined substantially.

Reducing Operating Costs

The third major category of the cost reduction program comprises efforts to increase the efficiency of the Department's day-to-day operations in the areas of real property management, supply, communications, transportation, maintenance, and general logistics administration. Savings of over \$1.1 billion were achieved through these efforts during fiscal year 1965.

Nearly half of these operating cost savings have come from the continuing program to terminate unnecessary operations and release the personnel and real estate involved for productive purposes. One of the main goals of this program is to provide for the prompt adjustment of the military base structure when changes occur in our mix of forces or weapon systems. For example, the phaseout of B-47 medium bombers and of the older, liquid-fueled ATLAS and TITAN I intercontinental ballistic missiles has significantly affected the re-

quirements for training, support, maintenance, and supply facilities as well as for operating bases.

In recognition of the impact such technological changes have on the base structure, the Department of Defense in 1961 initiated a series of systematic, comprehensive reviews of all of its thousands of major and minor installations around the world. Real property holdings were reviewed category by category—supply depots and distribution facilities, ocean terminals, shipyards, and industrial plants as well as airfields, training centers, etc. In each category, facilities found excess to known present and future requirements—including emergency and mobilization needs—were identified and scheduled for closure, consolidation, or reduction. During fiscal year 1965, for example, the intensive review of 11 naval shipyards led to the conclusion that 8 would fully support the needs of the fleet, permitting the closing of the New York and Portsmouth, N.H., yards, and the combining of the Mare Island and San Francisco, Calif., yards. Other major studies completed during the year were directed toward restructuring the strategic air base complex, consolidating ocean terminals, and reducing excess capacity both in the Army's arsenal system and in the Air Force's overhaul, repair, and supply depots.

Including the major actions resulting from these studies, a total of 129 closures or reductions was approved during the fiscal year, ultimately releasing 575,000 acres of land, which, with improvements, had an acquisition cost of \$2.4 billion. A total of 62,000 military and civilian personnel positions will be eliminated, and annual operating cost savings will amount to \$458 million when these disposals are completed. These 129 actions brought to 703 the number of base reduction actions approved since 1961, which, in total, will release 1,659,000 acres of land and eliminate 85,176 military and 62,415 civilian positions, with anticipated operating savings of over \$1 billion annually.

While the Nation as a whole benefits when military installations no longer needed are disposed of, the communities and workers directly involved can be, and frequently are, adversely affected. To minimize this impact, the Department of Defense has attempted to mobilize those Federal, State, local, and private resources which can assist in converting former bases to productive uses and in helping to assure displaced employees of adequate employment opportunities. As a result of these efforts, many localities have actually been able to strengthen their potential for further economic growth by establishing new schools, airports, recreational facilities, and other community betterment projects on the former military bases, as well as by attracting new industries which, in many cases, have employed more people than the previous military activity.

For its career civilian employees displaced by base closures, the Department has guaranteed new job opportunities. Following the announcement of the shipyard and other major closings in November 1964, the hiring of new employees was temporarily restricted and a nationwide centralized referral system was established to match job vacancies with the displaced personnel. These measures expanded upon earlier efforts to facilitate their timely reemployment, such as the granting of temporary waivers of job qualifications, retraining to new skills, reimbursement for moving expenses when transferred to another Defense job, and by guaranteeing no reduction in pay during the period of readjustment. Although some employees have chosen to retire or resign from Federal service and still others have declined reemployment assistance, not one from the 42 closed bases to date was separated without being offered another job.

Support costs have also been reduced by consolidating and standardizing operations. Substantial economies, for example, have been derived from the assignment of common supply functions to DSA. Now responsible for the centralized management of nearly 1.4 million different supply items—36 percent of the Defense listings in the Federal Supply Catalog—DSA in fiscal year 1965 operated with almost 8,000 fewer personnel than were required to perform these functions before its establishment. In addition, better management and streamlined distribution channels have permitted the inventories of these centrally managed items to be reduced by about one-fifth. Moreover, these accomplishments have been paralleled by increases in supply effectiveness which in turn improves combat readiness. For example, 85.7 percent of DSA's deliveries to customers were shipped on time, a substantial improvement over the 72.4 percent rate achieved in the preceding fiscal year.

By increasing the operational efficiency of logistical support services such as communications, transportation and traffic management, maintenance, and real property management, savings of \$390 million were made during fiscal year 1965. Better management of telecommunications activities by the Defense Communications Agency contributed \$118 million. The consolidation of leased lines into a single, integrated operating system allowed the Department to negotiate lower bulk rates from commercial carriers, while additional economies resulted from a review of the 26,901 circuits in the system that led to the cancellation of service agreements for 544 of these. Despite this reduction in circuitry, the quality and reliability of long-line communications continued to improve during the year as additional stations were linked to the automatic voice (AUTOVON) and automatic digital (AUTODIN) networks.

Transportation costs were reduced by \$35 million during the year through such management actions as consolidating more small shipments into carload lots; "containerizing" household goods for continuous shipment on through bills of lading; seeking out the most economical mode of transportation for cargo movements, consistent with true delivery-time requirements; and limiting the use of first class passenger transportation wherever possible. For example, whereas 62.7 percent of air traffic mileage had been at first class rates in 1961, this type of travel accounted for only 24.1 percent in 1965, producing savings of \$1.1 million for the year. Further economies are expected to flow from the previously mentioned establishment of the Military Traffic Management and Terminal Service within the Department of the Army.

Better maintenance management of military weapons and equipment yielded savings of \$117 million during fiscal year 1965. The consolidation of maintenance activities, the elimination of unnecessary maintenance, the rebuilding of items in lieu of procuring replacements, better scheduling, and improved manning standards contributed to lowering costs in this area.

Improved management of the noncombat vehicle inventory, reduced use of contract technicians, better administration of military housing and other real property assets, and more economical packaging, preserving, and packing methods saved a total of \$120 million during fiscal year 1965.

The savings of \$19 million achieved in the Military Assistance Program stemmed in large part from better requirements calculations, including the substitution of stocks in long supply for new procurement of a slightly different item, the delivery of used vehicles instead of new ones for rehabilitation by the recipient nation, and the scaling down of organization and equipment standards to levels more appropriate for the local conditions prevailing in grant-aid countries.

Collective Security

U.S. willingness to bear its full share of the burdens and risks of collective security is evident in the pattern of its worldwide military deployments. On June 30, 1965, over 1,085,000 military personnel—nearly 41 percent of the total—were at sea or stationed outside the continental United States. Of this number, nearly 410,000 were Army personnel and 195,000 Air Force—42 percent and 24 percent, respectively, of the total strengths of these two Services. Nearly 88,000 sailors and Marines were assigned to oversea shore stations with 393,000 more serving at sea—together, they accounted for more than 55 percent of the Navy Department's strength. (See table 12.) In addition,

civilian support personnel at U.S. oversea bases numbered 249,000, or more than a fifth of all civilians employed by the Department. Further underscoring the United States commitment to its mutual defense treaties was the continuing increase in the over-all strength and combat readiness of the general purpose forces which are designed primarily to be used in support of or in conjunction with allied forces.

Frequent joint training exercises serve to test allied planning concepts and provide important practical experience under simulated wartime conditions. U.S. elements were involved in a number of command post and field maneuvers conducted under the auspices of the North Atlantic Treaty Organization (NATO) during the year, including such major operations as NORDIC AIR and MATCH-MAKER. The former featured the largest airdrop of paratroopers in Europe since the end of World War II, while the latter, which lasted 5 months, was the most extended maritime exercise ever conducted by NATO's antisubmarine warfare forces. Other joint exercises included SEA HORSE, which involved convoy training for the navies of the Southeast Asia Treaty Organization (SEATO), and MIDLINK VII, a combined air and sea exercise with Central Treaty Organization (CENTO) forces in the Arabian Sea. Together with the forces of seven other members of the Organization of the American States (OAS), U.S. Army, Navy, and Air Force units participated in Operation AYACHUCHO, a combined arms defense exercise held in Peru. The U.S. Navy again dispatched a task force to circumnavigate South America and carry on antisubmarine warfare exercises enroute with ships and aircraft from eight allied nations. STEEL PIKE, the largest of the binational exercises, provided training in amphibious assault techniques for United States and Spanish naval and marine forces.

In addition to performing their peace-keeping and training duties, U.S. units abroad continued to provide assistance as good neighbors whenever called upon. Food, medical supplies, bedding, and other relief items were supplied, transported, and distributed by American forces during the year to victims of a tornado and a fire in Panama, floods in Yugoslavia and Tunisia, famine in Somali, and an earthquake in El Salvador. U.S. aircraft were also utilized to support an operation by Belgian paratroopers in the Congo that evacuated some 1,500 Congolese and foreign nationals of 15 countries who were being held as hostages by rebels in an area around Stanleyville where the authority of the central government was being contested.

In NATO, a central concern continued to be the role of the European states in the maintenance of the strategic nuclear deterrent. The feasibility of a mixed-manned, jointly owned multilateral force (MIF) of surface ships armed with POLARIS missiles was tested

by staffing a U.S. guided missile destroyer, the *Claude V. Ricketts*, with a crew drawn from the navies of seven NATO countries. An alternative proposal advanced by the United Kingdom for an Atlantic nuclear force composed of both national and multinational elements was also reviewed. The attitude of the United States was that it was willing to consider any hardware arrangement that preserved two fundamental principles: (1) Integrated command and control and (2) no proliferation of nuclear weapons.

Besides such possible hardware solutions, the United States also indicated its willingness to investigate other ways of increasing the participation of the European allies in nuclear affairs of the alliance. Specifically, U.S. representatives at the North Atlantic Council meeting in May 1965 proposed the establishment of a select committee to examine methods of further improving consultation and participation by interested states in nuclear planning. Hopefully, any future agreement in this field would take into account the legitimate interests of all European allies and hold open the door for French accession.

The decision of France to proceed with her own *force de frappe* as well as a series of decisions during recent years that progressively decreased French participation in some of the organization's military arrangements have created special problems for the alliance. After the close of the fiscal year, President De Gaulle indicated his intention of raising further questions about the NATO integrated command structure. While the United States always stands ready to discuss such matters, it remains committed to the principle of collective security in Europe.

Much of the military strength achieved by our friends and allies since 1950 is owed to the U.S. Military Assistance Program (MAP), through which this country has been providing arms and training to other nations. The fiscal year 1965 program and the one proposed for 1966 continue to reflect the increasing self-sufficiency of many of our allies. For example, whereas in the early 1950's nearly 80 percent of MAP aid was programed for Europe, representing nearly one-fifth of the total European NATO defense effort, current programs allocate less than 5 percent which account for only about one-fiftieth of the amount now being spent by European NATO members for defense.

The remarkable economic resurgence in Europe has permitted two major adjustments in U.S. military assistance programs: (1) A substantial decrease in annual MAP appropriations and expenditures, and (2) a sharp increase in the proportion of funds allocated to other free world nations, especially those on the periphery of the Soviet Union and Communist China. During the Korean war years, annual appropriations for military assistance averaged over \$5.1 billion, and expenditures for this purpose accounted for nearly 8 percent of U.S.

national defense spending during fiscal years 1953 and 1954. For fiscal year 1965, however, the President requested and the Congress authorized and appropriated only \$1,055 million in new obligational authority, although the Congress did grant special authority to the President to draw up to \$300 million of our own military stocks for military assistance needs deemed vital to U.S. security. Some \$75 million of this special authority was actually used in fiscal year 1965 to support our allies in Southeast Asia, thus bringing the total available for fiscal year 1965 to \$1,130 million. Expenditures for the year were \$1,273 million—an amount which included the liquidation of some prior year obligations—or only about 2.6 percent of total defense outlays.

The progressive shift in the geographic orientation of the Military Assistance Program is reflected in the fiscal year 1966 program presented to the Congress in January 1965. The President requested new obligational authority of about \$1.2 billion, consisting of a basic program of about \$1 billion plus additional funds for the special combat needs of the Republic of Vietnam. Together with the reappropriation of some unexpended prior year funds and other financial adjustments, the total program requested for 1966 amounted to about \$1.3 billion. Of this sum, nearly 73 percent was earmarked for countries in the Near East, South Asia, and the Orient—almost all of it for 11 forward defense countries on the frontlines of the free world's collective security perimeter. These 11 nations are already contributing very substantial manpower resources to the common cause but lack economic resources required to arm and maintain their forces. Only 4.7 percent of the \$1.3 billion program for 1966 was scheduled for European countries, and this amount will be used to fulfill prior commitments and to strengthen the defensive capabilities of nations such as Spain, where important U.S. military bases are located. Aid for Latin American and African states will account for about 8 percent of the 1966 program, primarily to improve internal security and to encourage and support civic action programs. The remaining 14 percent of the 1966 program will finance MAP administrative expenses and the U.S. share of common alliance activities.

The amounts spent for grant-aid military assistance have been nearly equaled in recent years by sales of U.S.-produced military equipment, supplies, and services to other nations. During fiscal year 1965, receipts from such sales totaled approximately \$1.3 billion—an increase of about \$1 billion over 1961. Somewhat over one-half of the sales receipts was accounted for by our agreement with the Federal Republic of Germany, under which that country purchased U.S. equipment and services in amounts roughly equal to the foreign exchange costs of maintaining U.S. forces in Germany. During 1965, new agreements were concluded for the purchase of three modern guided missile

destroyers, for co-production in Germany of UH-1D helicopters, for the continued development of a new main battle tank, and for the joint testing and evaluation of two U.S. and two German V/STOL transport and fighter aircraft. In addition to Germany, the United Kingdom, Australia, New Zealand, and Italy announced major procurement or co-production programs of U.S. equipment during the year. The United Kingdom is buying F-4, F-111, and C-130 aircraft; and Australia three guided missile destroyers, F-111's, other aircraft, and a wide range of ground force equipment; New Zealand contracted for supply support of U.S. materiel which it is buying, e.g., C-130 and P-3A aircraft; and Italy is interested in the co-production of M-60 tanks and M-113 armored personnel carriers. Such agreements are mutually beneficial; the purchasing nations acquire modern materiel at far less expense than would be incurred were they to develop and produce the items themselves, while the receipts both help to sustain the American economy and offset the unfavorable balance of international payments resulting from the deployment of U.S. forces abroad in the interest of collective defense.

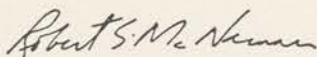
These sales receipts of approximately \$1.3 billion during fiscal year 1965, when applied against gross U.S. national defense expenditures abroad of \$2.8 billion, left a net foreign exchange deficit on the military account of over \$1.4 billion. This represents a substantial reduction in the net adverse balance compared with fiscal year 1961, when gross overseas expenditures of \$3.1 billion were offset by only \$0.3 billion in receipts, leaving a net deficit of \$2.8 billion.

In addition to the military sales program, the Department has made a vigorous, and largely successful, attempt to hold down the foreign exchange costs of our overseas deployments. For example, overseas commands have thoroughly reviewed and streamlined their logistic support and administrative establishments. About 10,000 foreign national employees were dropped from Defense payrolls during fiscal year 1965. About \$250 million of purchases was shifted from overseas to domestic sources between fiscal year 1961 and fiscal year 1965 in accordance with instructions that U.S. goods generally be bought whenever their cost, including handling and transportation, does not exceed the foreign price by more than 50 percent. Overseas procurement under MAP was also sharply curtailed, being limited almost exclusively to the fulfillment of prior commitments. In addition, lower U.S. payments have been negotiated for the support of such joint allied undertakings abroad as the NATO infrastructure program. Overseas construction projects were limited to only those most essential and even in these cases, U.S. contractors and materials are employed wherever feasible. Finally, both military and civilian personnel abroad

have been encouraged to reduce, on a voluntary basis, their foreign exchange spending.

As a result of all these measures, Defense-related spending abroad dropped from \$3.1 billion in fiscal year 1961 to less than \$2.8 billion in fiscal year 1965. The true magnitude of this accomplishment must be judged in the light of the fact that it took place during a period when the number of military personnel in foreign countries increased by about 50,000, when military pay scales rose nearly 30 percent, and when foreign wages and prices increased sharply.

Despite the steady downward trend in the net adverse balance of the military payments account, the outlook for the immediate future is not bright. Increasing requirements for the support of operations in Southeast Asia will inevitably affect adversely our defense expenditures entering the international balance of payments.



ROBERT S. McNAMARA,
Secretary of Defense.

ANNEX

ANNEX

RESERVE FORCES POLICY BOARD

May 1, 1964 to June 30, 1964

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ANNEX

Annex A
ANNUAL REPORT
of the
RESERVE FORCES POLICY BOARD

July 1, 1964, to June 30, 1965

An effective reserve in each of the military Services is required to make them able to accomplish their missions. This report will reflect the condition of the reserve components.

The following persons became members of the Reserve Forces Policy Board between July 1, 1964, and June 30, 1965: The Honorable Stanley R. Resor, as Under Secretary of the Army; the Honorable Kenneth E. BeLieu and Honorable Robert H. B. Baldwin, as Under Secretaries of the Navy; Maj. Gen. James F. Cantwell, ARNGUS; Rear Adm. Russell Kefauver, USN; Brig. Gen. Sidney S. McMath, USMCR; Brig. Gen. John M. Campbell, ANGUS; and Rear Adm. Charles Tighe, USCG.

In its sessions during 1965, the Reserve Forces Policy Board considered a number of major subjects affecting the reserve components. Principal among these were:

1. Army reserve components reorganization;
2. ROTC developments;
3. The effectiveness of the Reserve Officer Personnel Act; and
4. Critical skill needs.

These items were the subject of special presentations and repeated discussions during the year. Additionally, the Board addressed itself to various items of proposed legislation, both those originating within the Department of Defense and those referred to the Department from the Congress for comment. On all these matters, where appropriate, Board recommendations were transmitted to the Secretary of Defense to aid in the development of the Department's policy position or of its action program.

Personnel

The strength of each reserve component in fiscal year 1965 is shown in tables 21 and 22 of the appendix.

The so-called 6-month active-duty-for-training program which now provides for variable terms of training of 4 months or more is in its 10th year of operation. Over this period it has produced approximately 1 million basically trained men for the Ready Reserve. The number of participants in the active-duty-for-training program during fiscal year 1965 is shown in table 24.

The screening of the Ready Reserve required by section 271, title 10, United States Code, covered a total of 2,408,571 personnel during the period of this

report. As a result, 529,853 men were released from a Ready Reserve status, of whom 276,650 were transferred to the Standby Reserve or the Retired Reserve, and 253,203 were discharged. This screening procedure is continuous and intended to insure that the Ready Reserve is composed of qualified personnel available for mobilization.

During the fiscal year 1965 a new policy was established by Department of Defense Directive 1200.7 concerning the status of Government employees who are members of the Ready Reserve. This requires the removal from a Ready Reserve status of the Vice President of the United States; members of the Cabinet and other Presidential appointees requiring Senate confirmation; principal members of the legislative and judicial branches of the United States; and all key employees in the legislative, executive, and judiciary branches. Additionally, a review of all Ready Reservists occupying positions of GS-15 or higher grades within the Federal government was directed on the assumption that, unless otherwise demonstrated, such are key employees and are not available for mobilization. Ready Reservists remaining subsequent to screening are presumed to be available for active duty.

Reserve Officer Personnel Act (ROPA)

The Reserve Officer Personnel Act, as amended, now codified in titles 10 and 14, U.S.C., has in most instances served the purpose for which it was enacted. Implementation of ROPA apparently has not had any seriously adverse effect on the mobilization capabilities of the reserve components. However, the crucial years for the attritive features of ROPA will be from 1968 to 1971 when the officers commissioned during World War II will complete their service and their removal from an active status will be mandatory. The replacement of officer losses requires procurement at about double the present rate. The ROTC Vitalization Act of 1964 should aid in achieving the needed officer production.

The temporary authority granted to the Army and Air Force by the 1960 "omnibus amendments" of ROPA (and later extended) to exceed grade ceilings by allowing the promotion of officers to fill reserve unit vacancies was terminated as of June 30, 1965. Therefore, unit promotions to lieutenant colonel by the Army and unit promotions to major and lieutenant colonel by the Air Force are halted because of overages in grade.

In considering this problem, the Board recognized that several actions could be helpful. Among these are the amendment of ROPA—

- (1) to provide that reserve officers on extended active duty will not count against the authorized in-grade officer strength of the reserve components;
- (2) to authorize the involuntary transfer to the Retired Reserve of those officers who fail to qualify for retention in an active status; and
- (3) to rescind the authority for declinations of promotion.

In regard to the latter, the Board noted that prolonged retention in a unit of an officer who declines promotion stifles incentive, curtails ambition, and blocks the qualified and available junior officer.

The Reserve Officer Personnel Act, as it relates to the Coast Guard, was adequate until the passage of Public Law 88-130, which changed the system of promotion for Regular officers from fully qualified to best qualified. As a result, and because of certain temporary provisions creating a considerable amount of attrition, a large number of Regular officers have entered a zone of

promotion earlier than would otherwise have occurred. Therefore, by operation of the running-mate system, a larger number of Reserve officers have entered a zone of promotion, thus enlarging the "hump" which has existed in the Reserve in the grades of captain and commander. Some attrition was created in these grades in fiscal years 1964 and 1965 by the use of boards convened under the authority of 14 U.S.C. 787a. While the provisions will be used again during fiscal year 1966, only a small number of vacancies can be created, thereby allowing only a token number of promotions to these grades. In addition, due to the small number of promotions to the grade of commander, the number of officers serving in the grade of lieutenant commander is rapidly approaching the ceiling prescribed by law.

Army Reserve Components

Throughout the year, the Army continued to emphasize participation by reserve component units in active Army exercises, the use of multiple training assemblies, and the airlifting of units to training sites in different geographical areas for annual field training. In addition, Army training tests were conducted during ANACDUTRA 1964 for selected reserve component units. Conducted in accordance with active Army standards, these tests provided valuable information as to training and resources required to bring the unit to the desired readiness objectives.

The Department of the Army in the fiscal year 1965 recommended and undertook the detailed planning for a major reorganization of its reserve components. The basic concept of the proposed reorganization envisioned that all paid drill units of the USAR required by contingency plans would be transferred to the Army National Guard. The USAR would then consist of the Ready Reserve Reinforcement Pool, the Standby Reserve, and the Retired Reserve. The members of the Ready Reserve Reinforcement Pool would be available to be called to active duty to serve as reinforcements for ARNG units during annual field training and, in time of emergency, to serve as trained reinforcements and as combat loss replacements. Thus a clear differentiation in function would be established between the ARNG and the USAR. The ARNG, with a total authorized paid drill strength of 550,000, would be responsible for furnishing trained units. The USAR would be responsible for providing additional trained individuals. As of June 30, 1965, a final determination regarding the proposed reorganization had not been made.

In conjunction with the proposed reorganization, the 14 U.S. Army corps headquarters would be phased out by the end of June 1966.

Army National Guard (ARNG)

The President's fiscal year 1965 budget projected an opening strength of 376,000 for the ARNG and a year-end strength of 395,000. At the beginning of the year, ARNG actual strength was 381,546. During the year, this strength dropped to 374,503 by March 31, 1965. This loss is attributed to a variety of factors, including uncertainty in the minds of prospective enlistees concerning the announced reorganization plan and proposals to eliminate the draft. On June 30, 1965, the ARNG actual strength was 378,985 compared to the revised program objective of 385,000.

At the beginning of the fiscal year 1965, 22,347 ARNG technicians, including those in the civil defense program, were authorized. At the end of the year, there were 22,616 on board, including 5,027 in the air defense program and 142 in the program for military support of civil defense. Revised Army-Air Force Wage

Board locality schedules, pay increases equivalent to the Classification Act pay increase of 1964 for Federal employees, and normal within-grade step increases contributed to higher average costs.

The Army National Guard participated in the Enlisted Personnel Evaluation System (MOS testing) with an initial test cycle in November 1964 and a second cycle in February 1965. The high state of knowledge and interest of individuals is shown by the fact that 86.4 percent of the 54,864 persons tested achieved passing scores. This percentage compares favorably with that of the active Army.

Under the Reserve Enlistment Program (REP), the ARNG had a fiscal year 1965 programed input of 82,900 to active duty training. At the beginning of the year, due to the record gains of REP recruits in the fiscal year 1964, 37,700 enlistees were awaiting orders to report for training. Additional training spaces were authorized by the Department of the Army to reduce this backlog. During the fiscal year 1965, 74,626 enlistees entered active duty for training, and at the end of the fiscal year there were 28,321 awaiting training.

All ARNG units were authorized and encouraged to participate to the maximum reasonable extent in multiple unit training assemblies (MUTA-4). This has increased substantially the level of unit training, due to the drill time increase from 2 to 4 hours and the acceptance by most States of multiple drills on weekends. During the fiscal year 1965, there was an increase in the rates of ARNG personnel participation in armory training, and 311,322 Army Guardsmen attended annual field training. Selected ARNG units were given the Army training tests during the 1964 active duty for training period, providing valuable information on the readiness of ARNG units. To improve unit readiness, the ARNG participated in large-scale field exercises and maneuvers with the active Army, airlifted over 10,000 Guardsmen to summer training sites, and expanded the weekend training concept. About 900 Guardsmen from Minnesota and Washington trained in Exercise POLAR STRIKE in February 1965. Other exercises in which ARNG units participated in 1965 included ONEIDA BEAR II, NORTHERN HILLS, and Exercise LOGEX. In the fiscal year 1965 Army National Guardsmen continued to attend active Army service schools, Army area schools, and Officer Candidate Schools.

During the fiscal year 1965, the ARNG aviation program showed significant increases, with a total of 213,000 programed flying hours. On June 30, 1965, there were 1,885 aviators on flying status, an increase of 226 during the year. The aircraft accident rate was reduced significantly.

During this reporting period, all ARNG NIKE-AJAX batteries were converted to NIKE-HERCULES missile batteries. At the end of the year, there were 48 NIKE-HERCULES batteries in CONUS and 6 in Hawaii, manned by 7,008 ARNG personnel, who were operational on-site 24 hours a day, 7 days a week. These batteries were a part of the ARADCOM protecting selected population and industrial centers against air attack.

Under a Department of Army plan approved during the fiscal year 1965 by the Secretary of Defense, civil defense planning headquarters were established under the Adjutants General in each State and the Commonwealth of Puerto Rico. Additional full-time officers and enlisted men in technician status, paid from Federal funds, were being added to the National Guard State headquarters to act as a civil defense planning staff. The Commanding General of USCONARC, CONUS Army commanders, and unified commanders of Alaska, Hawaii, and Puerto Rico are responsible for the planning and conduct of military support of civil defense in their respective areas, utilizing the State Adjutants General and the State headquarters and headquarters detachments. All military per-

sonnel, active and reserve, are reported by the respective Service chiefs as being potentially available for military support of civil defense. Upon declaration of a national emergency involving a nuclear attack on the United States, military resources not committed to higher priority missions will be made available to the State Adjutants General as required for conduct of military support of civil defense. The civil defense function will remain under civilian control except where civilian authority is unable to function.

Every State depends on the National Guard for assistance in natural disasters and extreme civil emergencies, when control and recovery are beyond the capabilities of other State and municipal agencies. The cost of these activities is borne entirely by the States. Duties in these instances include sandbagging to preclude flooding, assisting during hurricanes, help in snow emergencies and forest fires, search and rescue, emergency traffic control, and quelling prison riots. Noteworthy among the emergencies for which assistance was requested from the ARNG were Hurricane Hilda in Louisiana; floods in California, Oregon, Iowa, Wisconsin, Minnesota, Illinois, and Missouri; and tornadoes in Indiana, Wisconsin, Michigan, Ohio, and Tennessee.

On March 20, 1965, under the provisions of Executive Order 11207, March 19, 1965, units and members of the Alabama Army National Guard were called into Federal service to enforce the laws of the United States in Alabama during the civil rights demonstrations, including the march from Selma to Montgomery. All were returned to State control on March 28 and 29, 1965, except for authorized rear detachments.

The over-all status of equipment for the ARNG continued to improve during the year. As the more modern equipment became available, obsolete equipment was phased out of the ARNG system. There was a decrease in the aircraft, radio, and 2½-ton truck inventory due to adjustments in Army supply priorities. Major equipment received included later models of the M-48 series medium tanks; M-84 mortar carriers; M-50 howitzers; M-113 personnel carriers; ¾-ton trucks; ¾-ton trucks; guidance and launching stations (ENTAC); and M-60 machineguns.

As a result of the proposed reorganization of the Army reserve component units, the planned construction of ARNG facilities was curtailed. Only two armory projects were placed under contract in the first half of fiscal year 1965. On December 19, 1965, pending development of stationing plans for the reorganized ARNG, major construction projects were suspended. In the last half of fiscal year 1965, three (nonarmory) projects for improvement of training and administrative facilities at permanent training camps were approved. All three projects were placed under contract by June 30, 1965.

U.S. Army Reserve (USAR)

As the Army Reserve entered fiscal year 1965, the ability of units to perform their prescribed missions was particularly evident at summer camp where, for example, many support-type units actually supported other reserve organizations and active Army units during their summer field training. Training divisions of the USAR trained recruits for the active Army, taking over, in part, the missions of the Army Training Centers.

The President's budget for the fiscal year 1965 projected an end-of-year paid drill strength of 285,000. That objective was revised in June 1964, with the submission of the fiscal year 1965 apportionment request, to an end strength of 300,000. The fiscal year 1966 budget further revised the fiscal year 1965 end strength to 270,000. The paid drill strength began to decline in September 1964

and fell to a low of 260,577 in March 1965. The end fiscal year 1965 paid drill strength was 261,680.

The fiscal year 1965 objective for REP enlistments and inputs to training was 61,800. This was later revised to 52,000. Actual REP enlistments were 27,351 and inputs to training were 25,251.

During fiscal year 1965, the USAR had military occupation specialty tests administered to its enlisted members for the first time to determine individual skill and proficiency. Eighty-two percent of those tested attained qualifying scores.

At the beginning of the fiscal year, the number of USAR technicians employed to support USAR units was 4,527, out of 4,841 authorized. The shortage, carried over from the previous fiscal year, was due to an increase in authorization coming too late to allow full hire by the end of the year. Since the announcement of the proposed reorganization of the reserve components in December 1964, the technician strength has shown a steady decline. At the end of the fiscal year 1965 it was 4,501.

A new policy was established regarding participation in training by members of the Standby Reserve. Reservists transferred to the Standby Reserve through July 31, 1965, will be permitted to participate in reserve training for promotion and retirement points. However, those transferred to the Standby Reserve on or after August 1, 1965, will be eligible to participate only if they have not fulfilled their statutory service obligation, or if they qualify for retention in an active reserve status under section 1006, title 10, United States Code (the savings provision applicable to Reservists with 18 to 20 years of service).

USAR units and individuals were trained by a variety of means. Several experimental programs were introduced during the year which, although not universal throughout the USAR, provided data upon which to base future programs. Among these were air mobility exercises, Operation STEPLADDER, and Army training tests at battalion level.

Present law permits paid drill units to participate in 48 paid drills annually and 17 days of annual active duty training (including travel time). The old concept of weekly drills, consisting of 2-hour evening classroom assemblies, is being partially replaced by increasing use of multiple training assemblies, which provide at least a 100-percent increase in training time. Multiple drills, which allow for participation in local field training, comprised 40.2 percent of the total paid drill assemblies during the fiscal year 1965. Through this type of management Reserve units are continuing to increase substantially their level of training. Current training policy requires that mandatory individual training (such as individual weapons qualification) be accomplished at home stations to the maximum possible extent, so annual active duty for training can be devoted exclusively to unit training, with at least four consecutive nights spent in bivouac.

Training inspections during annual active duty for training in the calendar year 1964 revealed that commanders and staffs needed additional training as staff teams in tactical exercises. Greater emphasis was therefore placed on additional command post exercises throughout fiscal year 1965.

In that period, the USAR participated in or supported nine major training exercises, including the Line of Communication (LOC) Exercise of U.S. Army, Europe.

During the year, the USAR took part in three experimental unit training programs. The first was Operation STEPLADDER, a test of the concept of merging two understrength battalions to form a single organization for field training. This was tested in the 90th and 81st Divisions at Fort Hood, Tex., and Fort

Stewart, Ga., respectively. Although not adopted as firm training doctrine, this experimental program led to the policy within U.S. Continental Army Command that army commanders may authorize similar field training exercises for other units capable of advancement beyond company-level training.

The second training experiment was the use of Army training tests (ATT). The Chief of Staff directed that selected reserve component units be given Army training tests during their 1964 active duty for training. As a result, many USAR units are including Army training tests in their training schedules and will perform tests of their own during 1965.

The third experimental unit training program was in air mobility training. In accordance with the current emphasis on global mobility for Army troops, the reserve components initiated air mobility training in conjunction with travel to training sites for their 1964 annual active duty for training. The USAR portion of this operation was SKYTHRUST. Its objectives were to provide the units with experience in planning and executing unit movements by air. Five battalions and seven companies, with a total of 2,200 USAR troops, were airlifted to summer training sites, using the airlift capability of the Air National Guard, the U.S. Air Force Reserve, and chartered aircraft. Units were interchanged between CONUS and the oversea commands of Puerto Rico, Alaska, and Hawaii. SKYTHRUST provided advantages heretofore unobtainable. Units were able to train on unfamiliar terrain, and, in some cases, in areas toward which they are oriented for mobilization. SKYTHRUST also combined the training of Air National Guard and Air Force Reserve troop transport units with the training of the Army Reserve units which were airlifted. Plans for SKYTHRUST II during the 1965 annual active duty for training period provide for some 6,400 reservists to be air transported to training sites with the same objectives achieved in SKYTHRUST I.

Individual training of Army Reserves was accomplished using the entire spectrum of means available to the active Army and those peculiar to the Army Reserve. In addition to active duty tours at Army service schools and colleges, Army Training Centers for REP trainees, high-level national seminars, and mobilization designation tours, considerable training was performed in a non-pay status.

More than 19,000 reservists were enrolled in USAR schools, which operate in 299 locations in CONUS, Hawaii, Puerto Rico, the Philippines, France, Germany, Spain, and Italy. Courses were offered in 19 branch departments, including Command and General Staff, and in 30 military occupational specialties, including operation of a Noncommissioned Officers' Academy.

Thirty-two active Army service schools and colleges were used extensively by Army Reservists for both resident and extension courses. Senior Army Reserve officers kept abreast of national policy and strategy through attendance at the National War College defense strategy seminar, national security seminars conducted throughout CONUS by the Industrial College of the Armed Forces, reserve component officers' orientation courses at the Army War College, and the Communist strategy seminar at the Foreign Service Institute.

For reservists unable to participate in a troop program unit, the Army Reserve has 407 reinforcement training units in which reservists received valuable training in a non-pay status.

Marksmanship was emphasized throughout the year in a competitive program encouraging reservists to develop proficiency in use of small arms and individual marksmanship skills on their own initiative. Army Reserve teams and individuals scored more points at the National Matches in 1964 than members of any other reserve component of any Service.

During the fiscal year, the equipment situation was improved by the Army Reserve's receipt of better rifles and machineguns, M-48A1 tanks, M-113 personnel carriers, cargo trailers, and generators. High priority active Army requirements resulted in a decrease in Reserve stocks of 2½-ton trucks, radios, and aircraft.

The USAR units use 1,206 federally constructed, leased, or donated facilities for home station training, administration, and maintenance of equipment. At the end of the fiscal year, 556 of these facilities were federally constructed, of which 18 percent were jointly utilized by other Department of Defense reserve components.

Upon the announcement of the proposed reorganization, the Department of the Army was advised by OSD that no new USAR construction contracts would be awarded and that a review of contracted work underway would be made to determine the advisability of terminating it. The review was conducted and it was decided to continue construction under the contracts already awarded.

Naval Reserve

Over-all readiness of the Naval Reserve is again evaluated as good. The Selected Reserve units include 17 destroyers, 21 destroyer escorts, 12 minecraft, and 40 fleet-sized aircraft squadrons, of which 27 are antisubmarine warfare (ASW) squadrons. The ASW ships' crews would require a brief refresher training period and the carrier aviation squadrons would require carrier qualifications before being fully combat ready. Minecraft, patrol, and transport squadrons are ready now.

Since 1958 the Navy has maintained the Selected Reserve as the highest trained and immediately responsive part of its Ready Reserve. It is designed to provide the essential Mobilization Day Increment requirements of full mobilization, or the needs of any lesser contingency, and therefore includes all drill pay personnel of the Naval Reserve together with assigned ships and aircraft. Drill pay personnel all carry precut orders to their mobilization billets, issued and kept current by the Naval Reserve Manpower Center (NRMC), Bainbridge, Md.

The Selected Reserve is organized into five components: Anti-Submarine Warfare, Mine Warfare, Fleet Augmentation, Fleet Support Activities, and Shore Establishment. Highest priority is assigned to the ASW and Mine Warfare components, with two thirds of the Naval Air Reserve aircraft squadrons assigned to ASW. Units of these components and carrier squadrons of the Fleet Augmentation component are authorized additional paid drills beyond the normal 48 required annually by law in order to insure the highest possible degree of readiness. Further, their active training duty is performed as units of the fleet, often participating in major fleet exercises.

During this reporting period the strength of that part of the Selected Reserve for which drill pay is provided was maintained near the authorized ceiling of 126,000 officers and men. The quality of this segment was improved by a 5 percent increase in the on-board percentage of fleet-trained petty officers, and more effective inactive duty training.

The Selected Reserve also includes an additional 126,000 officers and men in a non-pay status who have been preselected for mobilization billets, of whom approximately 20,000 are voluntarily drilling without pay. All have recently served at least 2 years on active duty and are fleet trained. Their mobilization orders are held by, and would be mailed from, local mobilization centers after M-Day on a time-phased basis.

This total Selected Reserve strength of 252,000 is the number of Ready Reservists the Navy is authorized to recall involuntarily in a national emergency declared by the President. Although there are some shortfalls in specific billet requirements by rank, designator, rating, and pay grade, the Naval Reserve in general could meet its M-Day requirements. Under a full mobilization there would be shortages in ultimate total requirements for both officers and enlisted men which would have to be met by direct procurement of qualified personnel, accelerated training programs, and other means.

In a limited emergency situation, such as the Berlin or Cuban crisis, the availability of personnel for immediate active service could depend upon any involuntary recall criteria that might be established by the Congress. For example, exemption of Berlin and Cuban veterans would deprive Selected Reserve units of a large percentage of their most experienced officers and petty officers and appreciably reduce unit readiness. The Naval Reserve Manpower Center is, therefore, maintaining current listings of the immediate personnel requirements for augmentation of the active forces and of the drill-pay personnel available for recall under various criteria. Selection of persons to be used and order writing can be accomplished within hours, but sufficient drill pay personnel might not be available; if so, non-pay personnel would also be required in a partial mobilization.

Ready Reserve officer numbers declined from 56,200 to 55,231 during fiscal year 1965, a drop of 1.8 percent compared to one of 9.5 percent in fiscal year 1964. This net loss equals an increase in the number of reserve officers serving on active duty. Standby Reserve officers numbers increased by 1,400 to a total of 54,674, and officers in the Retired Reserve increased by nearly 4,000 to a total of 65,281.

Previous strength projections had indicated that the numbers of officers reaching retirement eligibility and mandatory attrition points would continue to exceed the numbers released from active duty to the Ready Reserve for the next 3 to 5 years. However, despite the one-time loss under tightened Ready Reserve screening regulations which became effective in January 1965, increased accessions during fiscal year 1965 nearly equaled the total loss, and it now appears that the Ready Reserve officer strength should turn upward in fiscal year 1966 or 1967.

The Ready Reserve strength dropped by 5,300 to a total of 326,980, primarily due to the poor recruiting through most of the year, but in part because 1,600 more nonrated men went to active duty in fiscal year 1965 than did in fiscal year 1964. However, this quantitative loss is overbalanced by a qualitative gain in the drill pay Selected Reserve, where the number of E-1 recruits was reduced by 11,300 while the number of E-3's and fleet-trained petty officers increased by 11,500.

As anticipated, the Standby Reserve enlisted strength continued to decline but at a much slower rate, with a loss of 2,800, for a yearend total of 17,267. This compares to a total drop of over 40,000 enlisted Standby Reservists in the two previous years. Retired Reserve enlisted strength increased by 434 to a total of 3,479.

The following major accomplishments strengthened the Naval Reserve during fiscal year 1965.

Replacement of 6 DE ships in the ASW component by 4 DD ships improved both the ASW capability and the capacity for annual active duty training of other Selected Reserve members. ASW ships now include 17 DD's and 21 DE's, with continuing replacement of DE's by DD's programed in subsequent years.

Transition to the F-8 jet fighter and A-4 jet attack aircraft in the Naval Air Reserve continued and will be completed during the first half of fiscal year 1966.

Additional C-118B transport aircraft and a C-118B flight simulator training device were provided to Naval Air Reserve units. Pilot transition at the first five air stations receiving C-118B's was 70 percent complete at the year's end.

There was increased participation by both Naval Reserve ships and aircraft squadrons in major and minor fleet exercises for operational training, on both 2-week annual cruises and on weekend drills. In addition, a fleet submarine was assigned to the Great Lakes during July-August 1964 to provide individual and joint training of surface, air, and submarine units of the Selected Reserve in that area.

Reduction of the aircraft accident rate in the Naval Air Reserve from 0.99 to an historic low of 0.66 was achieved through emphasis on safety procedures and increased utilization of extra drills for proficiency flying.

Direct support was given to the fleet between May 15 and June 30, 1965, by transport squadrons of the Naval Air Reserve through 11 C-118B flights from NAS Alameda to Southeast Asia, each lifting 15,000 pounds of priority cargo, and in 30 C-54 flights to NAS Barber's Point, each with 5,000 pounds of cargo. Return flights were also used to airlift personnel back to the United States.

Naval Reserve surface units occupy 452 training facilities, 300 Naval (or Naval and Marine Corps) Reserve Training Centers, and 152 smaller Naval Reserve Training Facilities. The facilities vary in size from 3,100 to over 32,000 square feet and in construction from old wood frame or World War II surplus quonset huts to modern brick buildings. Of the 452 total, 133 are jointly utilized with the Marine Corps Reserve, 131 with the Coast Guard Reserve, 48 with the Army Reserve, 39 with the Air Force Reserve, and 12 with the Army National Guard.

The Naval Air Reserve trains at 12 Naval Air Stations and 6 Naval Air Reserve Training Unit sites (NARTU), all of which are at either a fleet air station or facility. The reduction from 28 aviation training facilities in fiscal year 1958 requires an extensive airlift program for Reserve personnel to attend weekend drills. All but one of these facilities are jointly utilized with the Marine Corps Air Reserve; 6 are also shared with the Air Force Reserve and/or Air National Guard, 5 with the Army Reserve, 1 each with the U.S. Army and U.S. Air Force, and 3 with civil organizations.

Although 120 of the surface Naval Reserve facilities have been rehabilitated or replaced in the past 10 years, 256 are now over age or inadequate because of size, construction, configuration, or location. Similarly, all but 3 of the 18 Naval Air Reserve facilities are of World War II or earlier construction. Increasing age and slow rate of rehabilitation or replacement result in increasing maintenance costs. Over \$2 million's worth of essential maintenance work is now deferred.

To alleviate this situation, additional funds are being programmed over the next 5 years for both construction and maintenance. The current Naval Reserve construction plan includes 44 replacements and 47 major additions to or rehabilitations of surface and air reserve training facilities at a total 5-year cost of \$27.9 million.

Marine Corps Reserve

Every indicator shows that the Marine Corps Reserve is at its highest state of readiness in history. Personnel deficiencies existing on June 30, 1965, are being reduced after authorized personnel increases.

The trained available Ready Reserve strength, which includes the Organized Reserve, did not meet mobilization requirements at the end of fiscal year 1965

(as has been the case for a number of years). However, the bulk of personnel deficiencies will be met in accord with the recent decision to increase the regular establishment by 30,000 and the Organized Reserve by 2,500.

In the Marine Corps the entire Organized Marine Corps Reserve and part of the Class III Ready Reserve (mostly personnel who have served 3 or 4 years of active duty) fall within the category of the term Selected Reserve.

The Organized Marine Corps Reserve includes (1) basic units of the 4th Division/Wing Team; (2) units required to support a Marine Corps force structure of four division/wing teams; and (3) units designed to train individuals to augment in-being units of the regular establishment and mobilized reserve unit. Most units are organized under Tables of Organization and Equipment identical or similar to those of units in the regular establishment. However, Reserve units are not authorized full T/O strength and have on hand only those items of equipment required to support training.

The present structure of the Marine Corps Reserve provides flexibility to meet mobilization requirements of varying magnitude, permitting response to a requirement for individuals, trained units, or both.

During fiscal year 1965, significant progress was made in the Organized Marine Corps Reserve to increase the readiness posture of both individuals and units. Major actions to achieve this progress were these.

Two engineer companies, one engineer maintenance company, one motor transport maintenance company, one communication battalion, and one motor transport battalion were reassigned from "Other Fleet Marine Force Units" to the 4th Marine Aircraft Wing. These reassignments place the responsibility for supervision and training management under the Commanding General, Marine Air Reserve Training Command, and further orient the training toward the mobilization missions of the units.

Certain service support units were redesignated to parallel corresponding changes in the structure of the regular Marine Corps.

The numbers of technically trained personnel in units were increased through the voluntary Extended Technical Training Program for 6-month trainees and additional individual active duty for training personnel in technical skill fields.

Tactical Air Control Parties sections in five infantry battalions were authorized. Activation of these sections increased the capability of the 4th Marine Division/Wing Team for effecting close air/ground coordination and training.

A Readiness Reporting system was established in October 1964 for units of the Organized Marine Corps Reserve to parallel the reporting system in effect for the regular establishment. The combination of the two reports gives the Commandant a more complete appraisal of the total Marine Corps capability.

The Readiness Reporting System has made it possible to evaluate accurately the effectiveness of the actions enumerated above. The reports indicate areas of deficiency which detract from maximum readiness and need increased attention. These include a shortage of certain major items of equipment, principally aircraft and aircraft supplies, and a hard-skill MOS shortage in personnel.

A manning level of 80 percent in total strength of designated division units was attained. It is anticipated that this figure will increase to 85 percent as a result of the authorized increase of 2,500 Organized Marine Corps Reserve billets.

The Marine Air Reserve is under the command of the Commandant of the Marine Corps, but is logistically supported with facilities, aircraft, and related equipment furnished by the Chief, Naval Air Reserve Training. Procurement and support of Marine Corps-furnished equipment are provided by the Commandant of the Marine Corps.

During fiscal year 1965, the Chief of Naval Operations established a special project called HAIL for the protection of war reserve stocks for the 4th Marine Aircraft Wing. F-8A/B aircraft were introduced at three locations, and AF-1E aircraft have been completely replaced by the A-4B aircraft.

The An/TPQ-10 Radar Course Directing Control is in operation and included with other air control equipment in modernization programs.

Since inadequate numbers of the UH-34-type helicopter are available, the Organized Marine Corps Reserve is continuing to use the Navy antisubmarine equipped SH-34G for flight proficiency. This helicopter is not completely satisfactory for training since it cannot be used to transport troops or heavy loads in air/ground training. As a result, tactical training of troops in helicopter operations is minimal. Improvement is expected during fiscal year 1966 through an increase in availability of UH-34-type aircraft.

Unit and individual equipment on hand for ground units is adequate to support the training mission. All ground equipment deficiencies were met and essential items obtained during the year.

In regard to equipment, the general support artillery battalion of the 4th Marine Division was provided a training allowance of the new M-109 155-mm. self-propelled howitzer, identical to those recently provided to the active Fleet Marine Forces.

A modernization program involving the 106-mm. self-propelled rifle (ONTOS) in the M-50A1 configuration also was completed for all antitank units of the 4th Marine Division.

At the end of fiscal year 1965, Marine Corps Reserve units occupied 210 facilities, as follows:

- 142 Centers jointly with the Navy, Army, or several armed forces.

- 40 exclusively owned Marine Corps Training Centers.

- 10 exclusively leased Marine Corps Reserve Training Centers.

- 17 Naval Air Stations.

- 1 Air National Guard Base.

Improvements made to ground training centers during fiscal year 1965 to provide more adequate facilities included: Completion of 8 new training centers, 9 projects authorized for old centers at costs under \$300, 38 projects authorized for old centers at costs from \$300 to \$1,000, and 94 projects authorized for old centers at costs from \$1,001 to \$10,000.

The Marine Corps Reserve effects maximum utilization of joint facilities in accordance with the policy expressed in the law and Department of Defense policy, and exclusive-use training centers are built or maintained only when the situation requires it.

Air Reserve Forces

During this reporting period the Air National Guard (ANG) and Air Force Reserve (AFRes) continued to demonstrate their combat readiness and capability. As in the preceding year, the Air Reserve Forces were called on for extra effort in response to crises in various parts of the world.

Throughout the year, ANG air transport units and AFRes heavy troop carrier units continued to carry cargo for Military Air Transport Service (MATs) as they performed required overwater training flights. The 25 ANG units, with 200 C-97 and C-121 aircraft, flew as many as 165 missions in a single month, completing a yearly total of 1,469 MATs oversea missions, which involved 60,840 flying hours and moved 11,388 tons of essential military cargo to such locations as Saigon, Vietnam; Tachikawa, Japan; Frankfurt, Germany; and Torrejon, Spain.

All 22 of the ANG fighter interceptor squadrons and the six ANG fixed aircraft

control and warning squadrons continued to conduct around-the-clock operations as part of the Nation's active air defense force. Each of the flying squadrons kept a portion of its aircrews and aircraft on active duty, runway alert, flying intercept and identification missions under Air Force control. Aircrews spent more than 98,000 man-days on alert, flying more than 30,000 hours on actual intercept and identification missions.

The ANG C-97 "Talking Bird" also participated in the Dominican Republic operation. The Oklahoma-based airborne communications center was deployed to Ramey AFB, Puerto Rico, and to San Isidro, Dominican Republic, from May 2 through May 6, 1965.

The ANG C-123 unit in Alaska supported Air Force resupply efforts with 2,919 flying hours and an airlift of more than 3,600 passengers and 940 tons of cargo.

ANG transport units, in addition to their missions for MATS, airlifted Army National Guard units to annual field training sites, carrying a total of more than 25,000 passengers during 12,160 flying hours.

Air National Guard tactical fighter units, participating in Tactical Air Command exercises, flew 793 flying hours. The total support given TAC by the ANG air commando and tactical reconnaissance units flew 203 sorties and 694 flying hours. The total support given TAC by the ANG general purpose forces totaled 201,014 flying hours, including tactical fighter, tactical reconnaissance, air commando, and air refueling missions.

An outstanding example of improvement in Air Reserve Forces capability was the nonstop deployment of two jet squadrons to Europe in August 1964. This operation, "Ready Go," was supported by ANG air transport and air refueling units. The deployment time en route was slightly more than 9 hours as compared with 6 days during the Berlin crisis of 1961.

ANG communications maintenance and Ground Electronics Engineering and Installations Agency (GEEIA) units continued to train through "live scheme" projects, repairing communications and electronic equipment and installing radio, telephone, and teletype facilities at Air Force and ANG bases.

ANG fighter-interceptor units phased out the last of the F-86L aircraft, which were replaced by supersonic F-102's. In addition, one of the former F-86L units was converted to an air refueling mission with KC-97 aircraft, and another to a reconnaissance mission with RF-94F aircraft. These changes brought the ANG force structure to a year-end posture as follows:

Mission	Force (squadrons)	Aircraft
Air Defense.....	22	F-102, F-100A, F-89J.
Tactical Fighter.....	23	F-105, F-100C, F-86H. F-84F.
Tactical Reconnaissance.....	12	RF-84F, RF-57.
Air Refueling.....	5	KC-97.
Air Commando.....	4	U-10, HU-16, C-119.
Air Transport.....	26	C-97, C-121, C-123.

The ANG units were manned to the level authorized by OSD drill pay ceilings. The ANG conducted a drive to recruit prior-service pilots for its flying units, completing the year with 3,742 pilots assigned and another 63 whose appointments were being processed. Programed pilot strength for June 30, 1965, was 3,800.

There is still a need for a program to procure young pilots for both the ANG and AFRes. This problem will become more critical as the aging pilot resource gets closer to mandatory retirement under the Reserve Officer Personnel Act.

The five AFRes groups, with some 20 C-124 aircraft, flew 152 MATS oversea missions for a total airlift of 11,775,607 ton-miles of airlift support of U.S. forces in Vietnam, Japan, Alaska, and the Caribbean area.

AFRes troop carrier units, primarily those equipped with C-119 and C-123 aircraft, provided direct support to the Air Force during the Dominican Republic operation in May and June. Over a 2-month period, volunteer AFRes aircrews flew 1,796 sorties for a total of 16,229 hours, and an airlift of more than 4 million passenger-miles and almost 5 mission cargo ton-miles.

All 12 of the AFRes Air Terminal Squadrons were directed to perform annual active duty for training by augmenting MATS port facilities. The squadrons assisted MATS in handling the heavy workloads caused by increased airlift requirements to Southeast Asia and the Dominican Republic. Training locations were at Hickam AFB, Hawaii; Travis AFB, Calif.; Charleston AFB, S.C.; and McGuire AFB, N.J. In addition, AFRes air rescue units flew 98 different mission sorties in direct support of Air Rescue Service operations for a total of 892 flying hours.

The Air Force continued its efforts to modernize organizational structure and equipment as well as to improve the results of training. The revision of the AFRes medical unit program was completed during the year, leaving only one of the USAF hospital units in existence on June 30, 1965, and 132 AFRes medical service units organized at Air Force bases throughout the country. Two air postal groups, with eight air postal flights, were organized during the year and have made substantial progress toward operational readiness. Further re-evaluation by OSD of the AFRes recovery program resulted in the deactivation of all the remaining 43 groups and 112 squadrons in this program by March 31, 1965.

Aircraft and equipment changes during the year included the conversion of one additional AFRes troop carrier group to C-124 aircraft, making a year-end total of 6 heavy troop carrier groups equipped with C-124's, 36 groups with C-119's, and 3 groups with C-123's.

The total Air Reserve Forces strength as of June 30, 1965 as reflected in table 22 includes significant improvement in the manning of the Ready Reserve units in both the ANG and AFRes.

The Air Reserve Forces inventory of mission aircraft as of June 30, 1965 totaled 2,124. These included the following types:

<i>Air National Guard</i>		<i>Air National Guard—Continued</i>	
Type:	Number	Type—Continued	Number
F-105 -----	19	U-10 -----	21
F-102 -----	228	HU-16 -----	18
F-100A -----	44		
F-100C -----	201	Total ANG	
F-89J -----	180	Mission Aircraft-----	1,525
F-86H -----	80		
F-84F -----	258	<i>Air Force Reserve</i>	
RF-84F -----	136	Type:	
RB-57 -----	48	C-124 -----	28
C-97 -----	154	C-123 -----	23
KC-97 -----	60	C-119 -----	529
C-119 -----	16	HU-16 -----	19
C-121 -----	53		
C-123 -----	9	Total AFRes	
		Mission Aircraft -----	599

Withdrawal by the Air Force of equipment needed to support operations in Southeast Asia, particularly C-123 and RB-57 aircraft, mission equipment from the communications units, and aerospace ground equipment from many flying units has created critical problems in achieving and maintaining combat readiness.

As a result of base utilization studies conducted in fiscal years 1964 and 1965, one ANG air transport unit was relocated from Newark to McGuire AFB, N.J., and an AFRes troop carrier group moved from Bates Field to Brookley AFB, Ala. Movement of two more AFRes troop carrier units from civil airfields to Air Force installations is programed for fiscal year 1966.

Needed construction of AFRes training facilities for flying units has been restricted due to the imbalance of military construction authorization and funds with the currently accelerated program. Increased recruiting resulting from the group reorganization during the latter 6 months of the reporting period brought with it the requirement for additional administration and training space. Of higher priority, however, are the on-the-line aircraft maintenance facilities required to meet the C-124 aircraft conversion schedule.

ANG and AFRes units continued to progress toward combat readiness during the year. The C-119-equipped AFRes troop carrier groups reached their highest degree of readiness in history.

The application to the Air Reserve Forces of new operational readiness criteria developed by the Joint Chiefs of Staff resulted in a drop in the readiness ratings of many units. The rating changes were due in large measure to the imbalance between JCS manning requirements and the OSD ceilings on drill pay training. (Members of operational Air Reserve Forces units are required to perform 48 inactive duty training periods and 15 days of active duty training annually.) Other factors which limited the achievement of higher readiness ratings were conversions to new aircraft and missions, shortages of missions aircraft, and the resultant difficulty in procuring and training aircrews.

Air Reserve Forces capability and usefulness to the Nation increased substantially in spite of changes in rating criteria. The extensive missions support which the ANG and AFRes were able to provide to the active forces during the past year are evidence that the Air Reserve Forces are an effective and functioning part of the U.S. Air Force.

Coast Guard Reserve

Coast Guard Reserve readiness is not satisfactory in view of the task assignments and the available Ready Reservists to carry out these assignments upon mobilization. While the Reserve is in excellent condition to fulfill its personnel requirements in the port security field, there is inadequate Organized Reserve unit strength in the areas of vessel manning, coastal force, and aviation, and a continuing shortage of adequate training equipment in most fields.

The Coast Guard Ready Reserve ceiling of 45,200 did not change during fiscal year 1965. The increase in personnel in the Ready Reserve from fiscal year 1964 through fiscal year 1965 caused a 5 percent increase—to 65 percent—in the ability of the Reserve to meet its Ready Reserve mobilization requirements. The requirements that can be met by personnel in drilling units remain unchanged, at 56 percent of the early mobilization requirements.

The total strength of the Coast Guard Ready Reserve, not on active duty, increased from 27,129 to 29,489 during fiscal year 1965. The number of personnel assigned in a drill pay status decreased from 16,620 to 16,578.

Training in a drill pay status is provided in 277 organized units, with 312 additional personnel training in various inter-Service training units. Volunteers in a nonpay status are assigned among 22 Coast Guard volunteer training units, 10 Organized Reserve Port Security units, and various inter-Service training units.

As of June 30, 1965, 122 organized units were designated operational port security training units, with 950 officers and 8,354 enlisted personnel assigned. The concept of operational unit training, as teams for specific functions upon mobilization, was expanded by the organization of an additional two units into Organized Reserve Port Security units (ORPSU's). These are charged with the effective coordination of all Coast Guard Reserve port security training efforts in a specific port area. ORPSUs were increased from 28 to 30, with 20 being in a paid status.

Personnel training for vessel augmentation and activation numbered 490 officers and 3,478 enlisted personnel in vessel augmentation Organized Reserve training units, an increase of 39 officers and 439 enlisted men over fiscal year 1964. Continued emphasis is being placed on this, particularly through preselecting recruits who are enlisted to train in the seagoing ratings.

Preselection is also being used for Coastal Force trainees. There are six Coastal Force Organized Reserve training units, three more than in fiscal year 1964. Thirty-one officers and 280 enlisted personnel received this type of training, compared to a fiscal year 1964 strength of 15 officers and 124 enlisted men.

The training programs of other organized units continue to be reviewed to insure alignment with mobilization requirements by rating and specialty.

A general shortage of equipment for realistic operational training continues to exist. Budgetary restrictions have limited the planned acquisition of additional operational port security training equipment; therefore, the total number of sets of this equipment remains at six. A PCE from the Navy Reserve fleet and an AK from the Maritime Administration were acquired at no cost for operational shipboard and port security training in fiscal year 1966. A schedule for the orderly acquisition of adequate training equipment and vessels has been planned and will be implemented as funds become available.

In the event of mobilization, unit operating equipment will be obtained through normal supply channels. Unit training equipment and training vessels will also be available to the Regular service or activated Reserve units, as conditions indicate.

The Coast Guard Reserve continues to drill at training facilities of other armed forces, primarily those of the Navy, or at 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 of reserves. During fiscal year 1965, 5,555 reservists received training in 24 courses of specialized areas of instruction. During the summer season, a large variety of 2-week courses are taught for personnel on active duty for training. During the other 9 months of the year, specialized and technical courses are available for both officers and enlisted Reserve personnel. Most of the structures at this facility are of temporary World War II construction and need replacement.

Reserve Officers' Training Corps (ROTC)

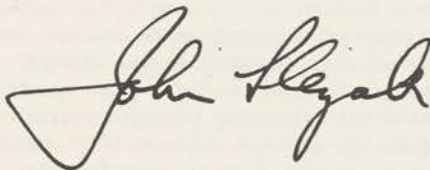
The Advisory Panel on ROTC Affairs, operating under the Reserve Forces Policy Board, met twice during the fiscal year to review the current ROTC

situation, especially the activities of the Services in the implementation of the new ROTC Vitalization Act.

On October 13, 1964, the President signed into law the ROTC Vitalization Act designated to improve the ROTC program, making the first major change in the ROTC program since 1916. It facilitates the continuation of the traditional 4-year ROTC program and also provides for a new 2-year ROTC program for college students who did not participate in ROTC training during their first 2 years of college. The law also establishes a scholarship or financial assistance program for students in 4-year ROTC programs. Screening and selection of applicants for ROTC scholarships were initiated, as well as a recruiting campaign for 2-year program applicants. This act also requires each member accepted into advanced ROTC training and all members receiving financial assistance to enlist in the reserve component of the appropriate armed force.

As a result of the ROTC Vitalization Act, emoluments for ROTC students were increased as follows:

1. Pay for students raised from \$27 a month to at least \$40 but not more than \$50 per month;
2. Pay for summer training raised from \$78 per month to \$120.60 per month;
3. Travel allowance for attendance at summer camp increased from 5 cents to 6 cents per mile; and
4. A uniform allowance of \$300 is provided for graduates commissioned as either Regular or Reserve officers.



JOHN SLEZAK,
Chairman, Reserve Forces Policy Board.

Annex B

ANNUAL REPORT

of the

DEFENSE SUPPLY AGENCY

July 1, 1964, to June 30, 1965

This report covers the fourth year of Defense Supply Agency (DSA) operations. In fiscal year 1965 supply effectiveness in terms of on-time shipments rose 13.3 percentage points to an alltime high of 85.7 percent, despite an increase of 23 percent in the total number of customer requisitions. Sales were approximately at the forecast level, but during the last quarter of the fiscal year procurement deliveries rose to \$1,739.5 million, exceeding the annual plan by nearly \$100 million. There was also a carryover of nearly \$460 million in materiel on order as the year ended, exceeding the corresponding carryover at the end of fiscal 1964 by \$133 million. These increases reflected forecasts of requirements for support of troop deployments in the Dominican Republic and in Southeast Asia during the following year. DSA inventories continued their 3-year downward trend but at a slower rate, and the drawdown objective originally programed for fiscal 1965 was missed by more than \$100 million. This shortfall reflected the accelerated materiel deliveries already mentioned and foreshadows a reversal in inventory trends. The current financial plan for fiscal year 1966 anticipates an investment increase of \$1.4 billion, overbalancing all drawdowns achieved since DSA was established.

In November 1964, Secretary of Defense McNamara announced a plan to consolidate DSA's clothing and textile, medical, and subsistence management functions into a single field activity at Philadelphia, Pa. Also in compliance with a DoD policy change, the traffic management function was transferred to the Army in February 1965. However, the most important changes during the year affecting both the mission and organization of DSA were concerned with contract administration services (CAS). When fully implemented, this new function will nearly double the personnel strength and workload of DSA.

Contract Administration Services

In October 1963 the Secretary of Defense approved Project 60, a study which recommended Defense-wide consolidation of certain contract administration functions. The new area of responsibility involved a national merger of existing geographically aligned organizations, comprising some 20,000 people working in over 150 separate offices of the military departments and DSA. Buying functions and administration of contracts in certain plants associated primarily with major weapon systems were excluded. As a preliminary step, Project 60 recommended that the concept be tested in one locality. The Philadelphia Contract Administration Services Region (Pilot Test), activated in April 1964 under the direct

supervision of the Deputy Assistant Secretary of Defense (Procurement), was judged a success and provided many precedents for subsequent nationwide action.

On June 4, 1964, the Secretary of Defense formally assigned the contract administration services function to DSA. His memorandum of that date directed that the new function be performed "by linking the contract administration services and DSA missions under common management." It further provided that the CAS function be kept separate, and that DSA Headquarters be restructured to provide common supporting staff elements in such areas as comptroller, personnel, facilities management, data processing, and administrative support. The Director of DSA was instructed to establish a National Planning Group (NPG), drawn from all the Services and DSA. The NPG was to prepare a plan of action within 45 days, and a detailed implementation plan by January 1, 1965. The NPG, ultimately numbering some 300 Army, Navy, Air Force, and DSA civilian and military specialists and headed by Maj. Gen. William W. Veal, USAF, began operations at DSA Headquarters about July 1, 1964.

Early in August 1964 the required plan of action was submitted to DoD outlining the content of the complete plan to be prepared by January 1, 1965. The plan of action included provision for the identification of the total resources required in terms of manpower, dollars, and facilities; details on organization, operation, and management controls; and a comprehensive listing of the elements to be included in developing the implementation plan. Following approval of the plan of action by the Deputy Secretary of Defense, the planning group undertook an extensive evaluation involving the development of standing operating procedures, organization charts, manning documents, and budget and funding plans. Beginning on September 1, 1964, the planning group also had the benefit of some practical operating experience. On that date the Philadelphia Defense CAS Region (Pilot Test) was transferred from the Office, Secretary of Defense, to DSA, and placed under the staff direction of the NPG.

A particularly intensive effort was required to determine the optimum location of future CAS field organizations and the geographical boundaries of their responsibility. Approximately 20,000 personnel were potentially involved, and it was considered essential that they be kept informed of developments. In fact, a significant amount of the planning effort required the direct participation of existing contract administration services organizations. To provide efficient and effective communication channels, Contract Administration Regional Coordinating Committees (CARCCs) were established, consisting of the chiefs of existing military Service offices performing CAS functions in the regions. Planners identified several critical areas that would require early and intensive effort to meet the time schedule for the consolidation. For example, acquisition of new office space under certain circumstances requires a coordinated review by several agencies and ultimately congressional committee approval before final action is possible. Communications equipment, electronic data processing equipment, and site preparation for data processing equipment were all identified as essentials requiring a considerable leadtime. The plan involved the consolidation of fully operational organizations, located frequently in four or more separate offices and each reporting to a different Service, into single regional organizations with uniform operating concepts. It was therefore necessary to delineate in detail every significant step, and when and how this step was to be accomplished.

Since Contract Administration Services is, as the name implies, essentially a service organization that will administer contracts for the Army, Navy, Air

Force, Marine Corps, DSA, and NASA, it was necessary to inform the numerous buying organizations of planning developments on a continuing basis. During December 1964, final steps were taken to compile the essential factual data and the proposed courses of action into a volume entitled, "The National Implementation Plan (NIP)." The NIP was reviewed by the Defense Materiel Council and approved by the Secretary of Defense on December 28, 1964.

Restructuring of the central staff within DSA Headquarters to accommodate the new CAS function involved primarily a personnel augmentation to take care of increased workload. The new CAS organization under the Deputy Director for Contract Administration Services included offices for plans and management, systems support, and industrial security, and three new executive directorates for contract administration, quality assurance, and production. Plans also provided for the establishment of Defense Contract Administration Services Regions (DCASRs) at 10 principal cities, in addition to the region already established at Philadelphia, on a time-phased plan beginning in April 1965 and ending in December. By the end of the fiscal year two DCASRs at Detroit and Dallas had been activated.

Meanwhile, on January 31, 1965, the National Planning Group was disbanded, and General Veal was formally appointed Deputy Director of DSA for Contract Administration Services. A formal reorganization of DSA Headquarters, effective on March 15, 1965, established the new organizational elements described below (see fig. 1). All these elements exist primarily to supervise and provide uniform policy direction for corresponding functions performed in the field.

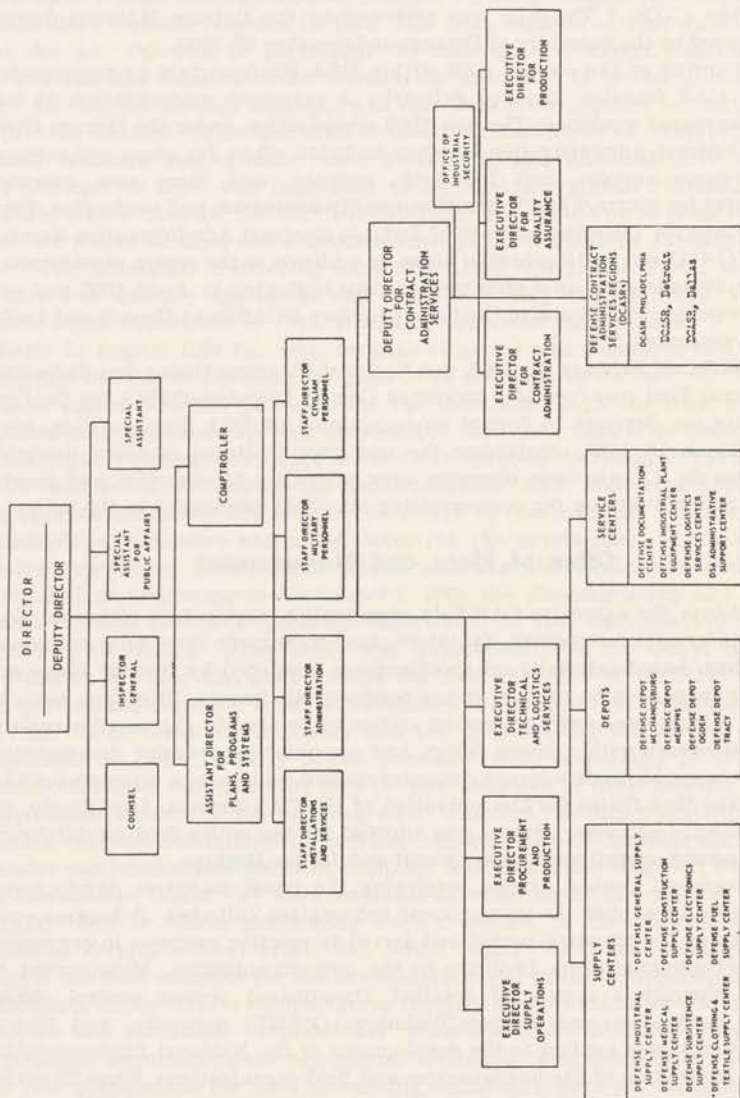
Office of Plans and Management

Control over the extensive CAS field organization required an elaborate management information structure. Tentative plans were made for a fully automated data system, based primarily on specifications developed by the Air Force and employing large volume random-access computer equipment. Provision was also made for a high-speed card processing system to be used by the smaller regions. Actual experience with systems design and computer programming demonstrated that an automated random-access computer system could not be completed within the required time frame for the activation of the CAS regions. Accordingly, the high-speed card processor system was adopted for the entire field establishment and has become operational in the Detroit and Dallas Regions.

A management control system employing the latest technical developments was designed to exploit the management information collected. It became operational during the planning period and served to monitor progress in conversion of contract administration facilities to the new organization, Management by exception through a system of detailed, time-phased project control charts, Program Evaluation and Review Technique (PERT) networks, and line of balance charts, was applied to the development of the National Implementation Plan and conversion of the headquarters and field organizations. Some 25 action projects were established and controlled.

The use of PERT networks and line of balance charts was only partially successful in monitoring the conversion of DCASR Detroit, established on April 1, 1965. Early indicators gave an overoptimistic picture of progress, especially in personnel retraining. Intensified efforts, supervised by a Conversion Task Force from DSA Headquarters, and use of revised review and evaluation criteria improved both performance and accuracy of reporting during the conversion of DCASR Dallas, established on June 1. Procedures based on still further revisions

DEFENSE SUPPLY AGENCY



* Centers with Direct Operations

Figure 1

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are to be applied in the conversion of the remaining regions, scheduled for completion during fiscal year 1966.

As the management information reporting system is extended progressively to the new CAS field organizations, the management control system will keep pace. An evaluation program based on periodic staff and command reviews has been developed to portray performance status compared to established standards by the analysis of data and statistics collected monthly from the DCASRs.

Office of Systems Support

CAS maintains a capability of supporting contracts for major weapons and space systems, when requested by the procuring program manager. Such support will consist primarily of surveillance to give early warning of potential delays in contract performance. The cause of delay is usually of a complex technical nature, and systems support personnel are predominantly production-oriented engineers, who are qualified to participate actively in the contract management function. If such support is agreed upon, they will not only assist other CAS elements with normal administration of technical contracts, but also provide the procuring activity with an extension of its technical arm into the daily detailed operation of the contract. This systems engineering support concept borrowed elements from both Air Force development engineering and Navy staff engineering procedures.

The surveillance (monitoring) concept was developed and tested at the Philadelphia Pilot Test Region. Because of shortages of properly qualified personnel, it was decided to give primary emphasis to systems support, and to perform essential monitoring on a part-time basis. This was feasible because the Services and NASA assigned monitors to each region. The Office of Systems Support in DSA Headquarters establishes procedures, provides policy guidance and personnel training, and also assists the field organizations in recruiting qualified personnel.

Office of Industrial Security

Industrial security is concerned with protecting classified information and materiel in the possession of American industry. One sub-task force of Project 60 studied this functional area and reported that 752 field personnel of the three military departments, located in 110 separate offices, were involved. Duplication of effort and variations in basic policies for clearance of personnel and in administrative paperwork indicated that there were major opportunities for increasing efficiency by simplifying and unifying this function. In October 1964 a Secretary of Defense memorandum formally assigned cognizance of the DoD Industrial Security Program to DSA, and directed that all contractor personnel clearances were to be processed centrally. A single staff agency was to adjudicate requests for clearances in cases where investigations had revealed adverse information. Previously, this function had been performed on a regional basis by the counterintelligence organization which made the investigation. The Defense Industrial Security Clearance Office (DISCO) began operations at Columbus, Ohio, on March 8, 1965. In anticipation of this event, revised security regulations and manuals had been prepared by DSA and published by DoD a month earlier. Publication was at DoD level because other Government agencies and several NATO organizations were among the addressees.

On March 22, when DSA assumed technical control of industrial security operations, the Central Index File was at the new location, having been transferred from Fort Holabird, Md. By June 4, 1965, DISCO had assumed the com-

plete security clearance workload from the former military department security offices. New uniform methods of requesting security clearances were in effect, and a pro rata procedure for assigning investigations to the three military departments had been agreed upon. End-of-year figures indicated a monthly workload of over 12,000 new clearances and 7,000 transfers of clearance by DISCO.

The variations and inconsistencies in earlier industrial security procedures had been a hindrance to effective security training, and the new uniform procedures also required some retraining. A Defense Industrial Security Education and Training Office (DISETO) was established at DSA Headquarters in March 1965. However, it remained unmanned during the period of this report because the assigned staff members were conducting conversion training seminars in the field. Some 550 Government personnel and 5,060 representatives of industry were indoctrinated in the new security program, including use of revised regulations and manuals. Additionally, between October and December 1964, the courses of instruction in industrial security at the Army's Fort Holabird school were completely revised, expanded, and updated. Subsequent coordination with Continental Army Command resulted in DSA receiving the entire allocation of the quota for attendance at these classes for apportionment to CAS field organizations and other user agencies.

Directorate of Contract Administration

This directorate supervises field management of assigned contracts to assure that the contractor's total performance is in accord with his contractual obligations to the Government. This function includes legal, financial, and engineering evaluations of contractor performance, including subcontracts, administration of Government-furnished property, and coordination of policy with the Armed Services Procurement Regulations (ASPR) Committee and its specialized subcommittees. These activities are designed to furnish timely and reliable information to procuring contracting officers concerning contractor capability and performance.

During the period of this report the main effort was expended in preparing and issuing detailed guidance on procedures for the field installations. As field activities began to become operational, it was also necessary to provide detailed guidance and surveillance of the application of policies. The separation of contract administration from contract award was a major departure for many organizations, requiring radically new procedures and basic indoctrination. Actual transfer of contracts from the Services and NASA proceeded with reasonable smoothness. There were minor transitional difficulties because contract awards continued to cite surveillance assigned to Service activities that no longer existed, and contract documents were received in an insufficient number of copies. There were also delays in transfer of contracts and especially of contract status data. Since considerable research had to be performed before transfer of a contract could be completed, this meant delay in assuming responsibility for administration of contracts.

At the end of the fiscal year, with three CAS Regions operational, the type and value of contracts being administered were as shown in Figure 2.

DSA also assumed responsibility for termination of contracts. Uniform regulations for this purpose were prepared and coordinated with the Military Departments. On June 30, 1965, the three operational regions were processing 161 termination dockets.

CONTRACTS ADMINISTERED BY DCASRs—PHILADELPHIA, DETROIT, AND DALLAS,
JUNE 30, 1965

	Army	Navy	Air Force	DSA	NASA	Total
Contracts on hand.....	4,571	6,157	6,326	5,798	239	23,091
Fixed Price.....	2,536	2,937	2,136	2,145	-----	9,754
Cost.....	578	683	1,497	1	-----	2,759
Incentive.....	17	18	132	-----	-----	167
Modified handling.....	1,321	2,276	2,217	3,456	-----	9,270
Other.....	119	243	344	196	239	1,141
Dollar value obligated (in millions of dollars).....	1,154.7	1,098.4	4,329.8	118.7	980.4	7,682.0
Fixed price.....	867.2	597.5	828.6	104.4	-----	2,397.7
Cost.....	151.4	374.7	2,117.2	-----	-----	2,643.3
Incentive.....	38.6	35.7	1,002.0	-----	-----	1,076.3
Modified handling.....	1.8	3.8	2.8	4.1	-----	12.5
Other.....	95.7	96.7	379.2	10.2	980.4	1,552.2
Unliquidated obligation (in millions of dollars).....	483.7	350.2	534.2	61.2	-----	1,429.3
Fixed price.....	419.5	233.3	176.5	50.8	-----	880.1
Cost.....	23.8	64.1	188.7	-----	-----	276.6
Incentive.....	5.7	11.2	84.9	-----	-----	101.8
Modified handling.....	1.3	2.0	2.1	2.8	-----	8.2
Other.....	33.4	39.6	82.0	7.6	-----	162.6

Figure 2

A Small Business and Labor Surplus Area Operations Manual for Contract Administration Services was formulated, coordinated, and published during fiscal year 1965. To effectively accomplish this mission, it is contemplated that CAS small business specialists will devote a large proportion of their time to the subcontracting program, in addition to normal counseling, assistance, and source development functions. Selected management data elements to determine DCASR effectiveness in this area were also developed, but only fragmentary management reports on this subject were received during the year.

Technical guidance in the financial services area is an essential aspect of contract administration. Analysis of performance is especially important in the fields of contractor estimating methods and contractor procurement systems. During the year the Analysis Division published several manuals, developed a Contractor Procurement System Review (CPSR) Program, and obtained approval by the ASPR Committee. At the end of the year, the program was operational with regard to 25 contractors in the Philadelphia Region and 12 contractors each in the Detroit and Dallas Regions. However, this was no more than a preliminary feasibility and shakedown test, since it is contemplated that the CPSR Program will be a major source of key management information for the whole OAS complex.

Control over Government property in the possession of contractors was assured by an Industrial Materials Support Division. An improved surveillance program employing statistical sampling techniques with predetermined limits of acceptability was developed, and instructions were prepared for publication as a revised DSA manual. Uniform plant clearance procedures were also prepared in coordination with the Contract Administration Panel of the ASPR

Committee. At the end of the fiscal year the three operational DCASRs had assumed responsibility for property administration of 5,950 contracts with 1,111 contractors, and for plant clearance of 1,520 cases involving 66,301 line items of property with an acquisition value of \$100,056,931.

Production Directorate

The production function involves identification of conditions potentially threatening to contractor performance and preventive or corrective action to assure that purchased requirements are delivered in the quantity needed and at the required time. Such assurance is based primarily on a critical appraisal of a contractor's resources and management ability.

Production personnel support the procuring activity by both pre-award surveys and post-award reviews, conducted within their specified areas of activity. As originally conceived, the Production Directorate consisted of Production Management, Production Engineering, Industrial Resources, and Mobilization Planning Divisions. Later in the fiscal year, decisions were made to include Industrial Labor Relations and Transportation elements, since these were determined to be essential parts of the production responsibility. A single Production Manual, DSAM 8300.1, covering procedures in all areas except transportation, was published in December 1964. A separate CAS Transportation Manual, DSAM 4500.1, published in February 1965, included procedures for preservation and packing, but was primarily concerned with traffic management.

In all functions connected with production, a current knowledge of contract status and the reporting thereof was highly essential. The greatest problem that arose during the year was an apparent inability to provide automated data suitable to the initial concept of minimal manual record keeping. In each converted region, it was necessary to supplement the data processing system with clerical support, although manpower requirements had been predicated on complete automation. Moreover, computer-processed data were discouragingly unreliable, which compounded the workload in every production activity. No solution to this problem had been found at the end of the fiscal year.

Directorate for Quality Assurance

During fiscal year 1965 the quality assurance elements of the National Planning Group developed an integrated plan and a series of manuals and other directive material in order to support activation of CAS regions, including pre-conversion training and postconversion operations. The Quality Assurance Directorate staff pattern was developed with specific divisions devoted to policy and plans, materiel quality, quality engineering, and safety and flight operations. A key element of the quality program was DSA Manual 8200.1, Procurement Quality Assurance Manual for Contract Administration Services. This manual is responsive to the needs of procuring offices and yet permits flexibility of quality management decision by the quality assurance representative in the plant. The manual was tested in the Philadelphia pilot test region and was published and used as a basis for training prior to the first regional conversion. As a contribution to the education of industry and to inspire confidence in CAS competence, key quality assurance personnel joined with the American Society for Quality Control in the presentation of a series of seminars for industry and Government on the background of Project 60 and CAS policy and plans. In addition, extensive effort by several task groups has gone into the development of improved quality assurance procedures as part of the Armed Services Procurement Regulations (ASPR).

Summary

As the fiscal year ended there was every indication that the eight remaining CAS regions would be activated on schedule, and that a nationwide network would be established and operational by December 1965.

Changes in Agency Mission and Organization

On November 19, 1964, OSD announced plans to consolidate the Defense Medical Supply Center at Brooklyn, N.Y., the Defense Subsistence Supply Center at Chicago, Ill., and the Defense Clothing and Textile Supply Center at Philadelphia, Pa., into a new Defense Personnel Support Center (DPSC) to be located in Philadelphia, Pa. The move was to be completed by July 1, 1965. It was expected to achieve a personnel reduction of 483 civilian and 38 military spaces and annual net savings of \$4.2 million, exclusive of one-time costs. At the end of the fiscal year all preparations for activation of the DPSC and for assuming the clothing and textile management function were on schedule. The computerized inventory control function for subsistence had been moved from Columbus, Ohio, to Philadelphia. The balance of the subsistence function was scheduled to be phased into DPSC on July 10, and the medical function on July 31, 1965.

A transfer of supply management functions relating to packaged petroleum, chemicals, and industrial gas cylinders from the Defense Fuel Supply Center (DFSC) to the Defense General Supply Center (DGSC) was also announced on November 19, 1964, and was implemented on March 1, 1965. Procurement responsibilities for packaged petroleum remained with those for bulk petroleum at DFSC. This activity collates Service requirements and procures fuels including coal, but does not control or manage inventories. Consequently DFSC is regarded as an operating supply center but not as an inventory control point. In compliance with another DoD directive, the Defense Traffic Management Service was disestablished on February 15, 1965, its mission being transferred to the Army's new Military Traffic Management and Terminal Service.

On March 15, 1965, a Staff Directorate for Installations and Services was established to centralize certain functions previously spread throughout the DSA Headquarters organization. These included real estate and facilities management, communications, field support, and the internal DSA transportation functions not transferred to the Army along with the Defense Traffic Management Service. The directorate is currently in a phased buildup which reflects increased requirements for support of newly assumed DSA missions, especially CAS. Its most recently assigned function is a DSA-wide Safety and Accident Prevention Program.

Additional mission assignments and organizational changes, designed to effect economies in operations and to improve efficiency, modified the Agency's structure during the fiscal year. They are listed in chronological order:

The DSA Weapon Systems Support Program became operational on July 1, 1964, supporting the HAWK missile with 3,700 items, the MINUTEMAN with 4,000 items, and the POLARIS with 16,000 items. By June 1965 six more systems (three Air Force aircraft and three Navy aircraft) were added to this mission. The program did not involve DSA management of additional items, but rather the identification of items already managed as applicable to weapon systems support. Such items were subjected to intensified management to assure the operational readiness of the supported weapons systems. At the end of the fiscal year items in this category exceeded 76,000, and stock availability was 97.4 percent.

On October 15, 1964, DSA was assigned responsibility for maintenance and publication of the DoD Register of Planned Emergency Producers (RPEP). The RPEP is a list of all manufacturers planned for the emergency production of items required by the Department of Defense. DSA is responsible for updating, annual publication, and issuance of the RPEP to all planning elements participating in the DoD Industrial Readiness Planning Program.

In November 1964, DSA was named operating agency for the Nationwide Centralized Referral System for Displaced DoD Employees, and was assigned responsibility for operating the Centralized Referral Activity (CRA). The system was designed to assist DoD personnel scheduled for involuntary separation in securing positions at DoD activities. CRA is a computer-operated system which provides one point in the continental United States where such personnel are registered and referred for placement in vacancies. The system was fully operational at the Defense Electronics Supply Center, Dayton, Ohio, by March 1965.

On March 1, 1965, the DoD Warehousing Gross Performance Measurement Office (DWGPMO) was established as a headquarters DSA field extension office of the Directorate of Supply Operations. In consonance with OSD policy direction, this office provides for the development and adoption of standard warehousing methods and standard quantitative measures for evaluating effectiveness in the utilization of warehousing manpower. During the fiscal year, the DWGPMO coordinated the issuance of a DoD manual covering application of the system and reporting requirements. The office also supervised execution of the system within DSA.

On June 22, 1965, DSA was assigned responsibility for serving as executive agent for the automated phases of the DoD Civilian Procurement Career Development Program. This mission involves the development, programing, and operation of an automated personnel inventory and referral system under which DoD civilian procurement personnel will be registered at one central point for referral to position vacancies throughout DoD.

Changes in Item Management Responsibility

DSA commenced fiscal year 1965 with eight operating supply centers managing 230 Federal Supply Classes (FSCs) for all the military Services, and 45 FSCs for the Army only, encompassing a total of 1,328,000 centrally managed items. Although the Secretary of Defense had formally assigned the 45 nonintegrated FSCs to DSA in June 1964 for integrated management for all the military Services, assumption of management responsibility was delayed pending approval of new item management coding criteria, accomplished late in the fiscal year. Rescheduling is now underway to permit coding of the new items under the revised criteria during fiscal years 1966-67.

On July 1, 1964, the Defense General Supply Center (DGSC) formally assumed management of six classes in Federal Supply Group 62—the so-called "Brown Classes" of lighting fixtures and lamps. The color designation was derived from a color-coded chart prepared to illustrate a plan for transferring supply responsibility to DSA in time-phased increments. Capitalizations from all the military Services, comprising some 20,000 items worth \$21 million, were largely completed before the date of formal transfer.

Since the Defense Fuel Supply Center no longer had inventory management functions and the Subsistence and Medical Centers were in process of being phased out, DSA entered fiscal year 1966 with five operating inventory control points managing 246 FSCs for all the military Services and 45 classes for

the Army only. Distribution and inventory value of the 1,368,900 centrally managed items involved are shown in table 34 in the appendix.

DSC Distribution System

No major changes were made during the year in the DSA Distribution System, which continued to consist of seven principal depots, four specialized depots, and 18 Direct Supply Support Points (DSSPs) serving the Navy. On January 1, 1962, items assigned to DSA or about to be assigned were stored in 77 locations. In line with the concept of concentrating stocks next to military posts or near ports of embarkation, the use of temporary storage locations or attrition sites has steadily decreased. DSA policy for evacuation of stocks from attrition sites calls for disposition-in-place of excesses; redistribution of replenishment stocks from attrition sites into permanent depots in lieu of new procurement; attrition to satisfy customer demands; and finally, bulk relocation into permanent depots when economically justified. DSA-owned materiel totaled 268,000 tons at 58 attrition sites in June 1963, 135,000 tons at 47 attrition sites in June 1964, and 70,600 tons at 21 sites in June 1965. This improved concentration was achieved despite repeated capitalizations of additional materiel stored at such sites.

A DSA-wide program for modernizing depot operations, initiated during fiscal 1965, is expected to increase operating efficiency, provide more timely service, and reduce cost of receiving, storing, and shipping supplies. These improvements are to be obtained through mechanization and combination of various functions into a completely integrated system for each depot. Defense Depot Ogden was selected for the pilot installation, specifications were completed, and procurement of the system has progressed as far as the distribution of invitations for bids. Funds have been authorized for fiscal year 1966 for warehouse modernization projects at Columbus, Ohio, and Memphis, Tenn.; metals handling projects at Defense Depots Tracy, Memphis, and Mechanicsburg have also been authorized.

DSA has initiated a program for the use of various methods of unitizing all DSA materiel, including items destined for foreign government consignees, for all modes of shipment. The objectives are to reduce small package shipments to homogeneous loads of optimum size; consolidate into unit loads to the maximum extent possible all DSA materiel at the time of procurement, receipt, storage and/or shipment; and to increase speed, security, accuracy, flexibility, and economy in packing, storage, and transportation by the direct application of mechanical handling equipment. Initial subsistence procurements under this program amounted to approximately 50 percent of the 1965 annual pack of nonperishable items entering the supply system.

Defense-Wide Services

During fiscal year 1965, DSA continued to administer Defense-wide programs for cataloging, materiel utilization, surplus disposal, management of technical data, and coordinated procurement. DSA was also standardization assignee for approximately 2.4 million items, or 63 percent of the 3.8 million DoD items in the Federal Catalog.

The greatest reduction in the number of DoD items achieved since the beginning of the Federal Catalog System was made in this fiscal year. A net decrease of 111,884 DoD items actually represented 338,020 additions to the Catalog offset

by 449,904 deletions (see table 36 in the appendix). These figures illustrate the magnitude and velocity of catalog operations needed to maintain a current and effective system.

The Federal Item Identification Guides (FIIGs) Improvement Program was approved in August 1964. Seven "trial" FIIGs were under preparation at four DSA centers as of June 30, 1965, with an additional 200 contemplated for completion by the end of fiscal year 1970. This program will establish computer-oriented item data for mass digital storage to promote improved item entry control and item reduction, as well as provide one record suitable for most logistics functions.

This was the first full year of provisioning screening activity. Over 28 percent of the 2,150,000 manufacturers' part numbers screened during fiscal 1965 were matched to existing Federal Stock Numbers (FSNs). Each part number matched obviated the need for compiling technical data and assigning a FSN. Additionally, many matched items were found to be in long supply, which made it possible to avoid unnecessary procurement.

During the year, a net total of 142,982 DSA-managed items were deleted from the DoD supply system as a result of inventory manager reviews (chiefly of inactive items), standardization actions, and catalog improvement efforts. Only those deleted items with a stockage history were considered under the DoD Cost Reduction Program; nevertheless, DSA will receive credit for inventory item reductions totaling \$10.8 million. The Agency goal for deletions in fiscal year 1966 is 95,000 items. DSA also continued to give major attention to coordinated elimination decisions affecting DSA and Service-managed items in DSA-managed supply classes. In fiscal 1965, 412,984 such items were reviewed. As a result of identification of duplicate or similar items and of standardization actions, decisions were made and concurred in by the military departments to eliminate 125,126 items. These decisions resulted in the items being declared nonstandard and not authorized for future procurement. A goal of 106,000 decisions based upon review of 315,000 items has been set for fiscal year 1966.

Redesign of the Federal Catalog System to provide complete automation was completed during the year, and the new system was scheduled for implementation in November 1965. The redesign program required a completely new card format and will permit additional codes providing more efficient processing controls. A significant addition is space for the two-character NATO country code. Seminars have been conducted to familiarize all levels of operating personnel with the changes. Cataloging activities are reprogramming their operations and expect to be able to accept the DLSC output in the new format on schedule.

The NATO nations have been advised of the Federal Catalog ADPS Redesign Program. Briefings on the redesign have been given to NATO member nations at special meetings of the Panels on Codification of Equipment in Paris. Additional material has been prepared for a presentation to European industry at the Third International Codification Symposium, to be held in Rome in September 1965. In addition, a manual of procedures is being developed for U.S./NATO administration of the Codification Program.

Improvement of mechanized procedures designed to screen releasable assets of one military Service Inventory Control Point (ICP) against the requirements of another is continuing. Reutilization resulting from this process, conducted centrally at DLSC and from direct interrogations between ICPs, totaled \$609 million during the year (\$357 million inter-Service reutilization and \$252 million intra-Service reutilization). Average assets recorded on the DLSC computer stood at \$4.7 billion and requirements average \$22.1 billion, both well above the fiscal 1964 averages.

Utilization of military service declared excess, which is screened primarily through manual rather than mechanized procedures, amounted to \$851 million during fiscal year 1965. The establishment of mechanized procedures to process the input of declared excess has progressed to the extent that the need for detailed descriptions by reporting activities has, to a considerable extent, been eliminated. Mechanized processes now provide the means for DLSC to develop descriptions of the property for use in utilization screening within DoD, as well as for screening by the General Services Administration (GSA).

In May 1964, DSA was assigned responsibility for DoD-wide reutilization screening of automatic data processing equipment (ADPE). The assignment applied to both Government-owned and leased equipment of commercial type and was implemented on July 1, 1964, by establishing an ADPE Reutilization Screening Office within DSA Headquarters. During the first year of operation, this program resulted in redistribution of excess equipment worth \$32.2 million—\$26.1 million Government-owned and \$6.1 million leased equipment—through centralized screening techniques. The total included \$7.4 million utilized by civil agencies through an interchange of information with GSA.

Administered by DSA in cooperation with the military Services, the Weapon Systems Materiel Utilization Program promotes Defense-wide redistribution and utilization of excess military weapons assets and other special high-cost materiel generated from phaseouts and program terminations. This objective is accomplished through: (1) Close working relationships between DSA and all echelons of the Services, Defense agencies, and other Federal agencies; (2) early planning intelligence on military systems to be discontinued; (3) the development of new or alternate uses of the materiel; (4) the distribution of illustrated brochures and "flyers;" and (5) promotional efforts by DSA personnel. Intra-Service and inter-Service transfers of phased-out weapon systems have been substantially improved by an intensification of the brochure advertising techniques introduced during the previous year. During fiscal 1965 this procedure was formalized and used for screening the NIKE-AJAX, ATLAS D, ATLAS E, ATLAS F, and TITAN I systems. Responsibility for development, preparation, printing and distribution of these illustrated descriptive-type brochures was assigned to DLSC in November 1964. Recent publication of 13 brochures on the ATLAS E and F and TITAN I systems encompassed some \$579 million of excess materiel.

A procedure for specialized screening of high-value excess property (over \$25,000 acquisition cost) regardless of type became operational during the year. This was an outgrowth of the brochure technique for weapon systems and involved tailored distribution of one-page utilization flyers calling the items to the special attention of selected potential users. The first few flyers accomplished 100 percent utilization despite the fact that the property had previously been screened routinely with minimal or negative results. Utilization of property costing \$5.9 million, or a 73 percent utilization rate, has been realized from those flyers on which screening has been completed.

In November 1964, following a clarification of the Defense disposal function, the Secretary of Defense acted to expand and strengthen the DSA mission in this area. Responsibilities added at that time included the administration and supervision of the Foreign Excess Program; the development and establishment, in cooperation with the military departments, of workload, performance, and cost standards for all CONUS activities that are reimbursed from surplus sales proceeds; supervision of the program level of individual disposal activities through adherence to such established standards; assisting in the establishment of the reimbursable obligational authority required for the disposal activity

program of each DoD component, by recommending program levels by individual activity and changes thereto when appropriate, as a result of analyses carried out during the year.

When DSA was established, the 34 Consolidated Surplus Sales Offices (CSSOs) of the military departments and the four Regional Sales Offices became field elements of DLSC. The CSSOs were redesignated as Defense Surplus Sales Offices (DSSOs). On January 29, 1965, the four DLSC Regional Sales Offices were eliminated; the original 34 DSSOs have been reduced to 18 and will be further reduced to 12. Elimination of the six offices will be completed by September 1965. Annual savings from this reduction will amount to \$2.7 million.

DSA, in coordination with the military Services, has been engaged in a program to eliminate holding activities of DoD whenever practical and economical. By the end of the fiscal year, plans had been made to consolidate 56 military Service and DSA surplus holding activities.

The total value of DoD materiel utilizations and disposals in fiscal year 1965 was \$6,444 million. Proceeds from the sale of usable property were \$54.4 million and from scrap, \$53.0 million. Further details regarding these programs are given in table 38 in the appendix.

Item Entry Control

Established in November 1963, the DoD Item Entry Control office (DIECO) develops and coordinates the policies and systems for preventing the entry of unnecessary items into the Military Supply System. A comprehensive analysis has revealed two basic problem areas: (1) The control of items entering the supply system during the provisioning-cataloging cycle and (2) the control of items during design.

A pilot test conducted from July 1 to December 31, 1964, evaluated the use of a single-point technical review for all proposed new items in selected commodity areas during the provisioning-cataloging cycle. The commodity areas chosen for the pilot test represented 25 percent of all requirements for new stock numbers. The technical review resulted in 42 percent of the submittals being rejected. Of the total, 32 percent were found to have existing Federal stock numbers or recommended substitutes. The pilot test resulted in two principal recommendations: (1) To extend the technical review to other selected high-growth Federal supply classes, and (2) to determine the feasibility of performing a technical review of all proposed new items prior to procurement. Both of these contemplated actions should effect logistics system improvements and generate substantial cost avoidances.

Government and industry agree that item entry control must be effected at the point where savings and cost factors can be maximized—the “point of decision” when the design engineer recognizes a functional requirement and requires an item to fill it. Studies have determined that the development of preferred parts lists would provide the basis for optimum item entry control during design. DSA is conducting a comprehensive review of the hardware group at DISC and of the electronics groups at DESC, to determine the resources and reprogramming that will be required to provide optimum preferred parts lists coverage in the two largest high-growth areas. A companion study is being conducted to develop an improved means of correlating engineering and supply identification for preferred parts lists.

Serious consideration was also given to merging Project SHAKEDOWN with the Item Entry Control Program. SHAKEDOWN has been concerned with elim-

inating nonessential items already in the system rather than with preventing entry of new items, but both programs approached their parallel problems from the same technically oriented engineering-analysis point of view and required the same type of highly qualified personnel for their operations. A merger appeared to be feasible, and a plan to that end has been submitted to the Assistant Secretary of Defense (I&L) for review.

Value Engineering

Despite limited technical resources, DSA has made notable progress in eliminating "gold plating" of specifications. Cost reductions aggregated \$14 million in this area in fiscal 1965, compared to \$5.3 million in the previous year. Additional opportunities for savings can be expected as new commodities are assigned. To reap the benefits of desirable changes normally requires some adjustment in item specifications. This adjustment is the responsibility of the military departments, since it is so closely related to qualitative requirements over which they have exclusive jurisdiction. DSA must rely upon the Departments to decide where desirable changes can be made without impairing performance. However, based upon its logistics and procurement experience, DSA has the responsibility of recommending projects for improving items within its commodity jurisdiction.

Another favorable development during the year was a revision of the ASPR providing for contractors to share in the savings resulting from their value engineering efforts. In addition to savings under the immediate contract, contractors may share savings in future acquisitions and collateral savings in operation and logistic support. Under these circumstances, DSA should experience no difficulty in meeting its fiscal year 1966 goal of \$15 million in value engineering cost reductions.

Defense Documentation Center

The Defense Documentation Center for Scientific and Technical Information (DDC) was transferred to DSA from the Air Force in 1963. DDC is a DSA primary level field activity which furnishes technical report services to all DoD components, other Government agencies, their contractors and potential contractors and grantees, and foreign governments as authorized in support of the DoD Scientific and Technical Information Program.

During fiscal 1965 the center provided the DoD research and development (R&D) community with nearly 1.5 million scientific and technical documents, 9,981 bibliographies, and 50,603 announcements describing R&D documents added to the DDC collection. Through the use of a new large-scale computer, average document processing time for announcements was reduced from 75 days in June 1964 to 24 days in June 1965, and preparation of bibliographies was accelerated from 6 working days to 3. Also contributing to this speedup was an agreement with the Department of Commerce, under which the latter reproduces and issues all DoD unclassified unlimited documents for DDC. The agreement, signed in March 1964 and completely implemented by June 1965, calls for DDC to provide computer service to Commerce on a cross-service basis. Automation made it possible to expand the announcement indexes to include author, corporate-author, and contract listings to supplement the subject index, and to issue all four types quarterly.

Industrial Plant Equipment

The Defense Industrial Plant Equipment Center (DIPEC), which became fully operational on July 1, 1964, is charged with primary responsibility for

development and maintenance of central records of the DoD inventory of industrial plant equipment (IPE) and the management of idle equipment. During 1965 the minimum value of IPE subject to central reporting was raised from \$500 to \$1,000, resulting in the deletion of 101,996 active and idle items. This change reduced the number of items in the central record approximately 24 percent, but resulted in only a 3-percent drop in value. At the end of fiscal year 1965 DIPEC held records of 329,187 units of equipment with an acquisition cost of \$3.427 billion. The center received 37,809 requests for equipment during the year, and was able to furnish 18,077 items valued at \$101.1 million. This included 62 pieces of equipment loaned to the Bureau of the Mint, which were instrumental in overcoming a nationwide coin shortage.

DIPEC ended fiscal year 1965 with an idle equipment inventory available for redistribution valued at \$288.1 million, which is part of the DoD Industrial Equipment Reserve. The balance of the reserve, controlled by the military departments, consisted of 42,000 items valued at \$565.6 million. This portion of the reserve is earmarked for specific mobilization requirements and is available for redistribution under limited circumstances.

Among those who benefited from the redistribution of idle DoD-owned IPE were the military departments, friendly foreign governments, the Atomic Energy Commission, the National Aeronautics and Space Administration, Federal Aviation Agency, the Department of the Treasury, Job Corps Training Centers, and vocational training schools throughout the United States.

In January 1965, a DSA manual on DIPEC operations was issued to DoD activities. This manual established uniform procedures for DoD management of IPE and clarified the respective responsibilities of the military departments, DSA, and other DoD components in such areas as recording, reporting, identification, maintenance, reutilization, and disposal. In April 1965 the first in a series of handbooks identifying IPE was published. This handbook describes electrical and electronic properties measuring and testing instruments. IPE in the DoD industrial system (e.g. arsenals, shipyards, and contractors plants) has not been assigned Federal Item Identification Numbers (FIINs), therefore, completion of the series of 39 IPE handbooks is essential to a nationwide census of IPE. Efficient and effective exchange of requirements and assets information among the military Services, other appropriate DoD and civil logistics management agencies, and with Defense contractors will be possible through use of the Federal Supply Classification and nomenclature, the Federal Supply Code for Manufacturers, and Manufacturers Model/Part Numbers provided in the handbooks. These standard data elements, together with other standards in the handbooks for describing IPE in a manner compatible with the Federal Catalog, will provide, for the first time, the means whereby the DoD can develop better data on the IPE it owns as a basis for decisions at all management levels.

At the beginning of fiscal 1965 idle IPE was being stored at 11 sites. During the year three storage sites were eliminated, and a new major facility, for repair and maintenance as well as storage, was established at the DCSC in Columbus, Ohio. This installation was programed to assume IPE functions being performed at Terre Haute, Ind. and Warren, Ohio, during fiscal 1967.

Relationships With Federal Civil Agencies

Recognizing the major role that could be played by the General Services Administration (GSA) in supply support to military activities, the Assistant Secretary of Defense (I&L) in September 1963 assigned the Director, DSA, the

duty of monitoring all DoD relationships with GSA in respect to procurements and supply services. This included maintaining a review of GSA performance under approved arrangements and, in collaboration with the military departments, taking steps to assure efficient use of GSA services.

Pursuant to its monitorship role, DSA developed with GSA an agreement governing DoD/GSA supply management relationships. Approved by ASD (I&L) in December 1964, this agreement delineates the respective supply management roles of DSA and GSA in support of DoD and the Federal civil agencies. Primarily, the agreement provides a set of criteria for determining commodity management assignments between DSA and GSA. These criteria are designed to identify those items which, because of their military essentiality or design considerations, must be managed for DoD by DSA. Items widely used throughout the Government and commercial in nature which do not meet these criteria of design or essentiality are considered candidates for management by GSA. These criteria were tested in 1964 by application to over 23,000 items in several selected Federal Catalog System (FCS) classes and proved effective, with minor changes. A joint DSA/GSA committee was established to carry out this aspect of the agreement and has begun the application of these criteria to FCS classes designated for integrated management.

The other major aspect of the DOD/GSA agreement is a provision requiring DSA to consider support of all Government agencies for certain commodity groups or classes; specifically designated were electronics, medical, fuel, clothing and textiles, and subsistence supplies. The circumstances under which the Defense Department will consider Government-wide supply support are specified and limited in the agreement as follows:

First, the groups or classes in question must qualify, under the agreed criteria, for management by the DSA as an integral part of the military supply system.

Second, the GSA must determine that separate arrangements for support of civil agencies would result in significantly higher costs than management by DSA.

Third, the Defense Department must agree that such support will not impair performance of its primary military mission or significantly increase operating costs or inventory investment.

Initial studies indicate the feasibility of DSA's providing Government-wide support of clothing and textile, electronic, and petroleum supplies. DSA, in coordination with GSA, undertook the development of detailed plans for this assignment subject to identification of costs and resultant economies. These will be submitted to the Secretary of Defense and the Administrator of General Services for their consideration. Further study is required of medical and subsistence supplies on a joint basis with GSA and the affected civil agencies.

GSA support to the Department of Defense during the fiscal year amounted to \$964 million for supplies and services. A large portion of this involved Defense purchases of hand tools and paint, transferred from DSA to GSA in fiscal 1964.

An interagency agreement with NASA was approved on April 27, 1965, effective July 1, 1965, whereby DESC will support NASA requirements for electronic items. Other commodity areas may be authorized at a later date consistent with the desires of NASA and in consonance with the DOD/GSA agreement.

The U.S. Coast Guard continued to obtain a full range of items from DSA while the Veterans Administration and the Public Health Service obtained medical items.

Federal Aviation Agency requirements for electron tubes increased during the year from a range of 500 items to 1,100 items.

In November 1964 the Office of Economic Opportunity (Job Corps) began to requisition clothing and subsistence items followed by designated items of general supplies. Value of sales to the Job Corps during fiscal 1965 amounted to \$2,350,000.

Budgeting and Funding

Generally, DSA uses appropriated Operations and Maintenance (O&M) and Research, Development, Test, and Evaluation (RDT&E) funds to pay operating costs (except military personnel costs) and a Stock Fund to finance supply inventories. Other fund authorizations are also used for military construction; procurement, Defense agencies (PDA), and family housing.

DSA's share of the O&M Defense agencies' appropriation for fiscal year 1965 was \$261.2 million. Additional funds of \$41.5 million were received from the military departments as reimbursement, so that the total DSA operating costs in fiscal year 1965 amounted to \$302.7 million. Of this total, \$16.0 million was transferred to DSA from the military departments for operating costs during fiscal year 1965 for operation of the DSA Contract Administration Services (CAS) which became operational January 1, 1965.

DSA's O&M budget for fiscal year 1966 provides \$445.3 million in direct obligational authority. Of this amount, \$148.0 million is for CAS operations.

RDT&E funds, within DSA, are used primarily by the Defense Documentation Center (DDC). In fiscal year 1965, DSA was authorized \$11.0 million, with actual obligations of \$10.1 million. The 1966 RDT&E budget requests \$11.2 million in direct obligational authority for DDC and associated support costs.

DSA used military construction funds totaling \$2.9 million during fiscal year 1965 to provide for administrative and logistical facilities, including minor construction and planning. Procurement, Defense Agencies' funds in fiscal year 1965 in the amount of \$3.4 million were used principally for materials handling equipment and administrative vehicles. The fiscal year 1966 budget includes authorizations of \$2.5 million for military construction and \$8.4 million for procurement requirements.

Under the appropriation Family Housing, Defense, \$0.1 million was obligated by DSA during fiscal year 1965 to operate 118 family housing units. For fiscal year 1966, \$0.1 million has been requested to operate, maintain, and improve 107 units.

Data reflecting operations, by center, of the Defense Stock Fund in fiscal years 1964 and 1965 are shown in table 34 of the appendix. Sales at the centers exceeded obligations by \$50.0 million. With proceeds of \$0.5 million from other unallocated income, the net investment change resulted in an inventory drawdown of \$50.5 million in fiscal year 1965. This exceeded the final adjusted OSD approved drawdown by \$21.9 million, but was approximately \$110 million less than the drawdown achieved in fiscal 1964.

These net reductions represent sales of items in long supply or excess without replacement and do not involve stocks required for support of current operations or mobilization reserves. Projections for fiscal year 1966 provide for \$4,273.7 million in obligations, \$2,864.0 million in net sales, and a net investment increase of \$1,409.7 million. This planned buildup is incident to the Southeast Asia situation.

Personnel

The principal impact on personnel planning during fiscal year 1965 was caused by assumption of the contract administration services function. While only 3

of the 11 DCASRs had been activated and 4,215 employees had been transferred to DSA rolls by June 30, 1965, plans were completed and much of the work accomplished for the orderly transfer from the Services of the nearly 20,000 employees who will staff this function by the middle of fiscal 1966. The essence of this advance planning was development of a nationwide system for matching surpluses against vacancies, thus minimizing personal hardships and preserving for DSA the important skills needed for the assumption of this function.

The principal internal personnel shift within DSA was the consolidation of the Medical, Subsistence, and Clothing and Textile Supply Centers into the Defense Personnel Support Center. Here again the mass movement of personnel was not completed within the fiscal year, but all preliminary steps for an orderly consolidation of workforce have been taken.

Progress has been made in attaining balanced military Service staffing in the Agency. As of June 30, 1965, Service distribution was Army, 36 percent; Navy, 25 percent; Air Force, 35 percent; and Marine Corps, 4 percent. Authorized distribution was Army, 37 percent; Navy, 28 percent; Air Force, 31 percent; and Marine Corps, 4 percent. It is anticipated that by the end of fiscal 1966, when CAS will be fully implemented, military staffing will be near a parity in Service distribution throughout DSA.

Summary statistics on the growth and distribution of DSA personnel strength are shown in Figure 3.

The Procurement and Production Program

Procurement awards during the year totaled \$3.04 billion. This volume is expected to increase in fiscal year 1966 to approximately \$4 billion because of the world situation. A competitive rate of 90.3 percent of total dollar awards was attained. Small business awards aggregated \$1.17 billion, 43.9 percent of all U.S. awards. Awards in labor surplus areas totaled \$459 million, or 21.6 percent of all DSA awards during the year.

Administrative lead time continued at a favorable rate—averaging 36.2 days for awards of over \$2,500, and 19.4 days for small purchases. An automated system for small purchase actions was instituted at DSA centers to reduce procurement lead time, and improve supply response. The present system applies to all Federal supply classes and provided a mechanized method to maintain, retrieve, and compile data to support an item reaching a buy position. Developments are underway to expand the existing automated small purchase system in fiscal year 1966 to include the computer generation of purchase orders, calls against blanket purchase agreements, requests for quotation, and purchase requests.

Greater efficiency of procurement management was achieved during the past year through completion of the first cycle of procurement management reviews of commodity centers. Continued emphasis on simplification and standardization of procurement management techniques and controls are expected to assure additional dividends in improved operations.

Another facet of DSA management improvements is the implementation of the DoD Procurement Career Development Program. The goal is to attract, develop, and retain individuals of the highest quality to accomplish DSA procurement functions. During fiscal year 1965 a total of 466 DSA procurement employees participated in training programs by the military service schools, and 61 underwent training presented by the Department of the Navy traveling teams.

DSA Special Purchase (SPUR) offices, located in New York City and Alameda, Calif., provided oversea support of the Army for DSA decentralized and nonstandard items in DSA classes. SPUR procurement totaled 164,000 line items with a total value of \$18.9 millions for the fiscal year.

STATUS OF DSA PERSONNEL

Activity	June 30, 1964			June 30, 1965		
	Total	Civilian	Military	Total	Civilian	Military
Clothing and Textile.....	3,762	3,696	66	3,773	3,704	69
Construction.....	4,656	4,587	69	4,514	4,451	63
Documentation.....	486	484	2	506	502	4
Electronic.....	3,708	3,653	55	3,584	3,536	48
Fuel.....	348	325	23	200	178	22
General.....	2,474	2,404	70	2,428	2,357	71
Industrial Plant						
Equipment.....	448	446	2	482	481	1
Industrial.....	2,754	2,706	48	2,649	2,602	47
Logistic Services.....	1,131	1,122	9	1,087	1,078	9
Medical.....	724	693	31	598	568	30
Subsistence.....	1,870	1,732	138	1,949	1,813	136
Traffic Management.....	1,090	996	94	(¹)	(¹)	(¹)
DCASR, Philadelphia.....				2,177	2,139	38
DCASR, Detroit.....				1,122	1,107	15
DCASR, Dallas.....				872	825	47
Industrial Security						
Clearance Office.....				153	151	2
Data Systems Automation						
Office.....	48	48		155	152	3
Procurement Support						
Offices.....	597	588	9	450	444	6
Mechanicsburg Depot.....	1,391	1,357	34	1,563	1,527	36
Memphis Depot.....	1,796	1,771	25	1,571	1,539	32
Ogden Depot.....	1,691	1,660	31	1,713	1,686	27
Tracy Depot.....	1,128	1,111	17	1,241	1,219	22
Administrative Support						
Center.....	296	254	42	385	334	51
Headquarters, DSA.....	743	641	102	956	837	119
Totals	31,141	30,274	867	34,128	33,230	898

¹ Transferred to Army.

Figure 3

Significant progress in industrial mobilization planning was evidenced as the program was expanded and strengthened at our centers. The centers selected items for planning from the mobilization reserve items provided by the military Services and, through the DSAPSOs and DCASRs, negotiated mobilization production schedules with about 750 producers during the year. To further improve the readiness position, letter contracts have been made to provide the means of initiating emergency procurement enabling industry to start production immediately. Over-all, mobilization production agreements have now been negotiated with nearly 7,000 producers of DSA-procured items.

As a result of the situation in Southeast Asia, requests to the Department of Commerce for special assistance under the priorities and allocations program to

expedite deliveries increased several fold. In some cases, direct orders were placed on contractors when all normal procurement techniques had failed. Acceleration of deliveries has resulted in satisfying extremely urgent military requirements. Important examples of these cases were: Hadfield Manganese steel for M-1 helmets, aluminum for special Air Force cargo loading pallets, and compasses for survival kits.

In accordance with its charter, DSA is charged with managing the DoD Coordinated Procurement Program. During fiscal year 1965, a major change in the program was the cancellation of the plant cognizance portion. By agreement, the Navy and the Air Force are continuing coordinated procurement of former plant cognizance items used by both departments pending recommendations to DSA for formal assignment of such items as commodity assignments.

The part of the Coordinated Procurement Program covering the purchase by DSA of Service-managed items in DSA-assigned classes continued to expand. During the fiscal year 1965, the dollar value of Service-managed items purchased by DSA was approximately \$97 million, a 74-percent increase over fiscal year 1964.

Uniform Automatic Data Processing Systems

At the time of its establishment, the operating activities that were assigned to DSA brought with them their own automatic data processing systems and ADPE based on their previous military Service affiliations. Consequently, there was little uniformity in data processing systems, nor was there a possibility of speedy improvement because of incompatible equipment. The Uniform Automatic Data Processing System (UADPS) is the DSA program to achieve the desired uniformity.

The program objectives are to improve DSA operations and management at reduced costs during peacetime and to assure a posture that will facilitate adjustments to the demands of mobilization or war. To attain these objectives, the UADPS program provides for acquiring the most modern automatic data processing and communications equipment and for exploiting their capabilities through advanced centralized system design. Computer applications common to two or more field activities are centrally programed at the DSA Data Systems Automation Office (DSAO), located in Columbus, Ohio.

UADPS currently includes three major projects, as follows:

1. Mechanization of Warehousing and Shipment Processing (MOWASP) which provides for mechanization of shipment planning functions, bills of lading, and related supply and transportation procedures.
2. Standard Automated Material Management System (SAMMS) which provides for the mechanization of distribution, requirements, procurement, financial, and cataloging functions.
3. Mechanization of Contract Administration Services (MOCAS) which will provide a uniform data system for the operation and management of the Defense Contract Administration Service Regions (DCASRs).

DSA has tentatively selected IBM 360 computer equipment for MOWASP at all DSA depots except Philadelphia, and RCA 3301 computer equipment for SAMMS at all DSA supply centers. Final selection is dependent on successful performance of benchmark tests. Implementation of MOWASP and SAMMS is scheduled to begin in fiscal year 1966 and be completed in 1967.

It is expected that a request for proposals for equipment to implement MOCAS will be issued during the third quarter of fiscal 1966. MOCAS is currently scheduled for implementation in July 1976. The system is intended to be DSA's implementation of MILSCAP, which is described below.

Military Standard Logistic Data Systems

An entire family of military standard data systems has been produced jointly by DSA and the military Services to meet current logistics requirements. The development of these data systems eliminated many of the varied procedures, codes, data elements, and formats existing throughout DoD, and provided a common base for expeditious processing of logistics information. These systems have affected all elements of DoD, and, in some instances, GSA, the Coast Guard, and foreign governments. Because of an increasing trend toward supply support crossing military Service lines, it was essential that a single monitoring agency assure uniform systems application among users. DSA has been designated as the single focal point in DoD for system supervision, after the design and implementation phases. The agency monitors DoD-wide application of the standard data systems described below, and coordinates all changes and improvements recommended by users.

The Military Standard Requisitioning and Issue Procedures (MILSTRIP) have been used by all DoD elements since July 1962 in ordering and issuing supplies. Also supervised by DSA are the Military Standard Transportation and Movements Procedures (MILSTAMP) which were implemented DoD-wide in October 1963 to control shipments of materiel from supply source to user. Inasmuch as commercial contractors and vendors are also affected by these data systems, companion procedures for contractors were published.

A third data system—Military Supply and Transportation Evaluation Procedures (MILSTEP)—is under development for implementation during calendar year 1966. This procedure will prescribe the means for measuring the time intervals from date of submission of a requisition until receipt of materiel by the user. Thus the operational effectiveness of all links in the logistics chain can be gauged for materiel movements under MILSTRIP and MILSTAMP.

Since August 1964 DSA has been formally charged with the mission of developing fully automated procedures for recording receipt, due in, inventory count, and supply adjustment transactions, and also for maintaining stock records. Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP) are designed for use by all DoD storage depots, stock control activities, and inventory control points, and provide the remaining standard transactions which complement the issue procedures of MILSTRIP. This system is scheduled to become effective throughout DoD for interdepartmental and interagency transactions on July 1, 1965.

In November 1964 DSA was assigned responsibility for Military Standard Contract Administration Procedures (MILSCAP). Since March 1965 a task group with DoD-wide representation has been working to finalize this system. MILSCAP will prescribe uniform procedures, formats, and time limits for the standard information which must be interchanged between CAS field activities and such other activities as inventory control points, finance and buying offices, and program managers. MILSCAP is scheduled for DoD-wide implementation on July 1, 1967.

Civil Defense Support

By agreement with the Office of Civil Defense, Office of the Secretary of the Army, effective August 30, 1965, DSA will assume expanded responsibilities for logistics functions in support of the National Civil Defense Program. Major new functions involved will be the development of materiel and budget requirements for OCD and the management of a nationwide supply distribution system. The

OCD Materiel Division will be transferred to DSA for that purpose. Since 1962, DSA has been performing procurement, storage, and issue functions for fallout shelter supplies; chemical, biological and radiological supplies; and emergency engineering equipment.

Shelter supplies sufficient for 63 million persons have been procured, and approximately 45 percent of these are in storage, occupying 3.2 million net square feet of space at 62 locations. These comprise the shelter supply storage and distribution complex, administered as follows:

Operated by :	Number of locations
Army -----	13
Navy -----	14
Air Force -----	4
DSA -----	5
GSA -----	26
Total -----	62

Aggressive steps continue to be taken by DSA and OCD to compress the Shelter Supply Storage and Distribution System to the least number of storage locations. During fiscal year 1965, the distribution system decreased from 67 to 62 locations. An additional 13 locations are scheduled to be phased out during fiscal 1966, including the 2 remaining leased facilities operated by GSA.

DSA Cost Reduction Program

DSA participation in cost reduction bears a priority second only to that of effective support to the armed forces. DSA's contributions to cost reduction are both direct and indirect. All of the Agency's operating elements participate directly in meeting DoD cost reduction goals. Indirect contributions result from DSA activity in administering Defense-wide programs and performing Defense-wide services, such as materiel interservicing, industrial plant equipment reutilization, and item reduction. These efforts are reflected in savings accruing to and reported by the military departments.

During fiscal year 1965 DSA accomplished direct cost reductions totaling \$197 million, compared to its established goal of \$162 million. The largest area of savings was refinement of secondary item requirements, including initial provisioning, and accounted for \$61 million. The second largest item, operating expense savings, accounted for \$59 million. Item withdrawals contributed \$20 million, and value engineering, \$14 million. Cost reduction goals for fiscal year 1966 were set at \$185 million.

Supply Effectiveness

A uniform procedure for the measurement of supply effectiveness was one of DSA's earliest management objectives, and the current reporting system was implemented in November 1962. This requires standardized reporting by all supply centers and measures effectiveness through two key indicators.

The first indicator, stock availability, measures the performance of the centers as inventory managers by the percentage of requisitioned items supplied from available stocks. Over-all availability for the DSA system improved steadily, reaching a cumulative annual rate of 91.4 percent on June 30, 1965.

The second indicator, on-time fill, measures supply system effectiveness by the percentage of items processed for shipment within the time frames specified in

the DoD Uniform Materiel Movement and Issue Priority System. On-time fill likewise showed a steady improvement, reaching a rate of 85.7 percent as the year ended.

The slight but steady improvement shown by both key indicators during fiscal year 1965 is considered significant, since it was achieved despite certain internal organizational changes which were expected to have an unfavorable impact on DSA's performance in addition to the international developments affecting the entire Defense establishment.

The DSA distribution system experienced a significant increase in customer demands during fiscal year 1965. The number of requisitions received rose from 12,763,100 in fiscal 1964 to 15,357,500 in 1965. The annual average of the issues per working day was 59,600, an increase of 23 percent over the figure for the previous fiscal year. These supply actions generated the physical handling of 2,979,300 short tons of DSA materiel, or 11,500 tons per working day.

The transfer of packaged petroleum items management to DGSC and the consolidation of medical, subsistence, and clothing inventory control functions under the DPSC were attended by problems of personnel losses, personnel training, and reduced levels of operations. Meanwhile, expanded military efforts in Southeast Asia led to increased quantitative demands for fast-moving items as well as for items wherein no previous demand had been indicated. Additional factors adversely affecting supply effectiveness were an increase of some 40,000 centrally managed items and the workload associated with preparations for conversion to the new Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP), scheduled for implementation on July 1, 1965.

The Agency's ability to show increased effectiveness in the face of these developments provides a persuasive argument for the validity of the basic concepts leading to the establishment of DSA. Integrated management of common supplies and logistics services has now operated efficiently for a period of 4 years, overcoming a variety of handicaps and meeting the limited emergencies of repeated partial mobilizations.

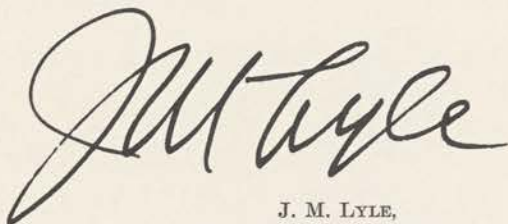
Summary

DSA has not solved and will not solve all the wholesale supply support and logistic services problems of the Department of Defense. Some of these are tied to Services' weapon systems, which in turn are bound up in the complex relationships of strategy and economics, the forward sweep of technology, and the rapid obsolescence of military materiel. However, it is believed that the Agency has equaled, and most recently has improved upon, the high standards of responsiveness to customer demands established by the single managers, exceeding the goals set for it when DSA was established. These achievements are not grounds for self-congratulation, but they do give a favorable indication that the agency will be equal to the far greater demands that can be expected as a consequence of the situation now developing in Southeast Asia. Some indication of the magnitude of those demands was foreshadowed in the DSA's fiscal year 1966 budget, which was presented in its preliminary form in the body of this report.

The scope of DSA's new mission for contract administration services is slowly becoming evident as the agency progressively assumes its assigned responsibilities. Up to this time DSA has had no responsibility for any aspect of major weapon systems or equipment and few contacts with the industries which produce them. Although three CAS regional headquarters of the contemplated 11 have been established, this by no means implies that administration of a proportionate

number of Defense contracts has been assumed. It now appears that by the end of fiscal year 1966, DSA may be administering over 200,000 prime contracts valued at \$45 billion, and will certainly have developed intimate contacts with virtually every facet of defense industry.

In summary, DSA has made a promising beginning in assuming a completely new function, and can submit a very favorable annual report of accomplishments in fulfilling its original mission.

A large, stylized handwritten signature in black ink, reading "J M Lyle". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

J. M. LYLE,
Vice Admiral, SC, USN,
Director, Defense Supply Agency.

Annual Report
of the
SECRETARY OF THE ARMY

July 1, 1964 to June 30, 1965

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I. Introduction

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I. Introduction

The Department of the Army is a continuation of the Department of War, created by an act of Congress of August 7, 1789. Henry Knox was the first Secretary of the Department, appointed by President Washington to continue in a post he had held under the Articles of Confederation.

Over the course of 176 years the Army's civilian stewards have come from many walks of life. Some went on to even greater heights in public affairs and the professions. Presidents James Monroe and William Howard Taft served as Secretaries of War. Others who became major figures in American history are John Calhoun, Jefferson Davis, Edwin Stanton, Elihu Root, and Henry Stimson. Shortly after the end of the fiscal year, on July 7, 1965, a new name was added to the roster of Secretaries of War and the Army, that of Mr. Stanley R. Resor, who, in succeeding the undersigned, became the 63d incumbent serving the 64th term in the office.*

Periodic reports of stewardship have been rendered to Congress and the President since the inception of the office and comprise a unique documentary record of American military and national affairs in peace and war. The following review of Army affairs in fiscal year 1965 adds another chapter to this account that has been a century and three-quarters in the making.

The 1965 report covers peacetime and wartime activities. To support national objectives, Army forces have been committed to operations in Vietnam and the Dominican Republic. In Vietnam, Army strength rose during the year from some 10,000 to about 35,000 men, including the introduction of combat troop units. In the 12-month period the Army lost 193 men through enemy action and by May total American casualties had surpassed the number lost in the entire Spanish-American War. In the Dominican Republic, too, 14 soldiers fell during fighting between rival factions seeking to gain control of that country.

Both the Vietnamese and Dominican involvements have tested the Army across the full range of military activity: Planning, organization, equipment, training, personnel, intelligence, logistics, and com-

*This does not include a number of secretaries who served *ad interim* (among them Generals Winfield Scott, U. S. Grant, William T. Sherman, and Hugh L. Scott), Henry L. Stimson served twice, under President Taft, and Presidents Franklin Roosevelt and Truman.

munications. The effects have extended through the whole structure and into such basic areas as research and development. Readiness and reaction have been especially challenged, and so has teamwork with the other Services. These factors were remarkably demonstrated in the Dominican crisis, when Marines landed from Navy ships, Army paratroopers were brought in by Air Force planes, and an Army general commanded the land operation, reporting through a unified commander to the Joint Chiefs of Staff.

Dramatic and significant changes do not always emerge sharply in a report of the evolutionary processes of so large and complex an organization as the Army over the comparatively brief span of a year. Few things are begun and completed within a year, yet in the normal course of events a number of undertakings do reach maturity in any given year, and in fiscal year 1965 there were several accomplishments of more than routine character. Outstanding among them was the creation of the airmobile division, a new type of military organization developed to exploit the latest advances in aviation. It is particularly suited to meet the challenges—existing and potential—of the modern battlefield, and certainly nothing could be more appropriate than that the 1st Cavalry Division (Airmobile), one of the Army's most illustrious mobile units, will be the first such division to enter the order of battle.

Another significant development, one that will bring better medical care and higher survivability to the combat soldier while conserving fighting strength, is a new air-transportable field medical treatment facility that is self-contained and mission-oriented and will support operations in any area or environment.

Scientific and technological advances have placed a premium on the readiness of reserve as well as active Army forces. Leisurely preparation and slow reaction are things of the past and our reserve forces must be as well trained and as ready to go as effective organization and management will permit. Attainment of maximum readiness is the purpose behind a major realignment plan for the reserve components, outlined in the following pages, that has been recommended for execution in 1966. The reorganization is intended to bring manpower and equipment into balance, to streamline management, and to provide a more effective force for national emergencies.

Apart from its basic military mission, a military organization has unique capabilities that are useful to the Nation, and the Army carries out a variety of tasks that affect the daily life of the American citizen. In fiscal year 1965 these have included nationwide activities in the field of civil defense; emergency activities connected with a rash of natural disasters around the country; support of Federal programs like the Job Corps; and participation in programs concerning pollution abate-

ment, forest management, the conservation of fish and wildlife, the development of outdoor recreation facilities, and the preservation of our precious natural beauty.

As always, however, the primary task of the Department of the Army is to provide combat-ready land forces. Army forces, both active and reserve, are in a better state of readiness today than they have ever been in any previous peacetime period. This annual report attempts to show the many and varied actions that have contributed to that achievement during the past fiscal year.

II. Operational Readiness

In its role as an instrument of national policy, the Army in fiscal year 1965 engaged in a wide variety of tasks, both peacetime and wartime in nature, at home and around the world. Out of a year-end strength of over 968,000, some 42 percent were deployed overseas in support of national objectives.

The Pacific and the Far East

U.S. Army, Pacific

United States Army, Pacific (USARPAC), with headquarters in Hawaii, was deployed over a vast geographical area including Hawaii, Japan, Korea, Okinawa, Vietnam, and Thailand. Operational forces included three infantry divisions, an airborne infantry brigade and such other elements as a missile command, separate artillery and air defense battalions, and aviation companies.

The bulk of USARPAC forces were deployed in the Eighth U.S. Army in Korea. This Army had its own logistic support units, including the Eighth Army Support Command. The U.S. Army, Japan, stationed at Camp Zama, operated a major logistical complex but had no combat forces. On Okinawa, the U.S. Army, Ryukyus, administered the IX Corps, a special forces group, an air defense brigade, and a LITTLE JOHN rocket battalion. An airborne brigade stationed in Okinawa was deployed to South Vietnam in May 1965 as part of an expanding allocation of Army resources both there and in Thailand to bolster the defense and security of those countries.

Military assistance commands in Vietnam and Thailand comprised over 35,000 U.S. Army personnel, including an airborne brigade and engineer, signal, aviation, medical, ordnance, quartermaster, transportation, military police, and other specialized units. Numerous actions were taken to improve logistic support of U.S. operations in Southeast Asia. One of the most significant was the deployment of a logistical command to South Vietnam, giving the Commander, U.S. Military Assistance Command, Vietnam (COMUSMACV), greater responsiveness and more flexibility in meeting logistic requirements of U.S. forces in that area. The 9th Logistical Command administered the support units in Thailand, and Army personnel served in military

assistance advisory groups in Japan, Taiwan, and the Philippines, and with the Military Equipment Delivery Team in Burma.

U.S. Army, Hawaii, and the 25th Infantry Division were, along with USARPAC Headquarters, also located on Oahu, Hawaii.

The Conflict in Vietnam

An increase in insurgent activity and in political turmoil in the government occurred in South Vietnam during the fiscal year, requiring a reappraisal and new measures by the United States to meet a changing situation. In the first quarter of the fiscal year, North Vietnam launched several attacks against U.S. Navy ships in the Gulf of Tonkin. In October and December of 1964 the Viet Cong insurgents attacked U.S. air bases at Bien Hoa and bombed the Brink Hotel officer quarters in Saigon, while in February 1965 they moved against the American facilities at Pleiku and bombed enlisted quarters in Qui Nhon. Meanwhile, political turmoil hampered the direction and control of operations against the insurgents, and continued pressures by the Buddhists against the government contributed to its instability.

The United States took a number of steps to meet its expanding security requirements. One of the first was to evacuate American dependents from Vietnam. In the sphere of military action a coordinated program of air strikes against selected military targets in North Vietnam got underway. The purpose was to disrupt lines of communications used to supply the insurgents in South Vietnam, to dissuade the Hanoi government from supporting insurgency in the South, and to convince the North Vietnamese government and people of American determination to resist aggression against South Vietnam. Conversely, the strikes reassured the South Vietnamese people, armed forces, and government of U.S. resolve in their behalf and were a strong morale factor.

Along another line, the Military Assistance Program (MAP) for South Vietnam was revised to support an increase in the country's armed forces and to provide additional American advisers to work with Vietnamese units from corps down to battalion level, as well as in the provinces and districts. At the same time, the introduction of additional U.S. combat and support units was begun, to provide security for American installations such as those at Da Nang, Bien Hoa, and Vung Tau and release Vietnamese Army units from such duties, to conduct counterinsurgency operations, and to provide support for American advisers and units and Vietnamese Army operations. During the year the total U.S. Army commitment in Vietnam rose from approximately 10,000 to about 35,000 personnel.

U.S. Army aviation support enhanced the Vietnamese Army's mobility, making it possible to move large forces over rivers, jungles,



Figure 1. In South Vietnam, Viet Cong prisoners are placed aboard a U.S. Army helicopter for evacuation to an interrogation point.

swamps, and mountains and react quickly to operational requirements. All weapons and equipment adaptable to the situation, except highly sophisticated systems, were provided, including the M-113 personnel carrier, the M-79 grenade launcher, the M-48A3 tank, and 105-mm. and 155-mm. howitzers. The Army Concept Team was on the ground evaluating experiences and ideas and working to improve techniques, materiel, and concepts to insure that the most effective materiel and tactics are used.

Thailand

Thailand, while not confronted by active insurgency within its borders, faced a growing subversion problem in its underdeveloped northern and northeastern provinces. A large and discontented North Vietnamese refugee population in the northeastern area, combined with unstable or unfriendly neighbors on its borders, has created in Thailand a clear threat of Communist insurgency. The United States has been helping Thailand improve its economic, military, and logistic position over the course of several years. The Army has been represented by over 3,600 personnel in the Joint U.S. Military Assistance

Group and the 9th Logistical Command. Among the major undertakings continued during the fiscal year were the improvement of an airfield at Nakhom Phanom, delivery of additional railroad equipment, extension to about two-thirds of completion of a bypass road around Bangkok, and establishment of materiel depots. The communications capability of Thai forces in isolated and remote areas was markedly improved, and the general posture of the Thai Army was enhanced through increased adviser and materiel assistance. Civic action projects were undertaken to raise Thai living standards, reflect the consideration of the military forces for civilian welfare, and remove causes of discontent. Some of these activities have been related to programs carried out through the Southeast Asia Treaty Organization and Thai mobile development units.

Korea

The U.S. commitment in Korea continued throughout the 12-month period under consideration, with the Eighth U.S. Army and Republic of Korea forces facing North Korean forces along the demilitarized zone.

The major combat forces of the Eighth Army consisted of the I U.S. Corps with its 1st Cavalry (soon to become the new airmobile division and be replaced by the 2d Infantry Division) and 7th Infantry Divisions; the 4th Missile Command; and the 38th Artillery Brigade (Air Defense). The I U.S. Corps, whose mission is to block the avenues of approach into South Korea on the west, stationed the 1st Cavalry Division along a part of the demilitarized zone and held the 7th Infantry Division in reserve. Units regularly conduct simulated combat training and hold frequent exercises to maintain a high state of readiness.

Along with the deployment of combat and support units in Korea, our Military Advisory Group (MAG) assisted the Korean Army in developing and maintaining its force structure.

Okinawa

The major combat forces on Okinawa consisted of Headquarters, IX U.S. Corps, the 173d Airborne Brigade (dispatched to South Vietnam in May), the 30th Artillery Brigade (AD), and the 1st Special Forces Group. Except for the 30th Artillery Brigade, all units were maintained in a deployable status in support of contingency plans, carried on simulated combat training, and participated in off-island readiness training exercises.

Europe and Africa

U.S. Army, Europe

United States Army, Europe (USAREUR), is the Army component of the unified U.S. European Command and a bulwark of the North Atlantic Treaty Organization. USAREUR represented about one-quarter of the Army's worldwide strength, and nearly three-fifths of its overseas strength. It is the Army's largest peacetime overseas command.

Along a 300-mile front of the Iron Curtain, USAREUR's major element—Seventh Army—had three mechanized infantry and two armored divisions deployed behind a screen of two armored cavalry regiments. Another armored cavalry regiment provided rear area security for the Seventh Army and was available for the reserve. The divisions and the Berlin Brigade all have completed reorganization under the ROAD (Reorganization Objective, Army Divisions) concept.

USAREUR strength was reduced slightly during the year by the withdrawal of most of the forces temporarily deployed to Europe during the 1961 Berlin crisis and as the result of improved management techniques.

The reorganization of the line of communications in Europe as part of the effort to reduce gold outflow was completed at the end of December 1964. Military transportation functions and units were transferred from France to Germany; the 4th Logistical Command and 13 other support units were returned to the continental United States. The reorganization resulted in the return of 5,369 military personnel to this country and a reduction of 6,241 civilian spaces in USAREUR.

To maintain its capability for providing initial combat support, USAREUR reorganized its logistic structure. Five depot complexes were originally organized to provide supply and maintenance services. Four such complexes are now in operation, the fifth having been phased out and its functions absorbed within other elements of USAREUR. The reorganization resulted in the closure of some installations and a reduced level of activity for others. By December 31, 1964, over 378,000 tons of supplies had been disposed of. Inbound cargo through the ports of western France has been reduced to a rate of approximately 10,000 tons per month.

The combat capability and readiness of Army forces in Europe have been improved by the steady supply of the latest weapons and equipment, such as the SERGEANT and PERSHING missile systems, 175-mm. self-propelled guns, 155-mm. self-propelled howitzers to replace 105's, and additional HONEST JOHN rockets.

The U.S. Southern European Task Force continued to provide NATO forces in northern Italy with ground-delivered atomic support, including the SERGEANT missile system.

Berlin

There was little change in the Berlin situation during the past year. One incident of consequence involved a Soviet attempt early in April 1965 to restrict U.S. access to Berlin. Army convoys continued to traverse the autobahn to demonstrate American determination to maintain free access to the city. Augmentation of the Berlin garrison, which was initiated during the crisis of 1961, was continued with a battalion from the 24th Infantry Division (Mechanized). The garrison's operational readiness was maintained at a high level through active training within the city and at major training areas in West Germany.

The Congo

Since 1961 the United States has provided funds directly and through the United Nations to the Congolese Government to assist that nation and its people through technical programs related to police, civil administration, water, and power development. To help the Congo during a rebel uprising, Task Force Leo, a joint team consisting of several Air Force transport planes and an Army security detachment, was stationed in the country in August 1964. Owing to decreasing lift requirements the force was reduced in May 1965, and phaseout is anticipated in August 1965.

The Somali Republic

In March 1965 the Somali Government urgently requested U.S. assistance in the form of medical personnel and supplies to cope with an emergency created by prolonged drought and famine. Early in April an 18-man team (Task Force Elder Man), composed of four doctors, 13 aidmen, and a linguist, departed Fort Knox, Ky., for the Somali Republic. Operating in accordance with guidance from the U.S. Ambassador and in consonance with the wishes of public officials of the country, the task force provided medical assistance to drought and famine victims from April 10 to 27. Almost 7,000 patients suffering from advanced stages of malnutrition, respiratory infections, pneumonia, and other illnesses were treated by the medical team, which used 22,000 pounds of medical supplies contributed by various U.S. drug companies and religious and relief societies. Task Force Elder Man completed its mission and returned to the United States on May 12, 1965.

Alaska and Latin America

U.S. Army, Alaska

In the far north, U.S. Army, Alaska (USARAL), is the Army component of the unified Alaskan Command. The headquarters is located at Fort Richardson, and major components included two mechanized infantry brigades, two air defense artillery battalions, Headquarters Support Command, the Yukon Command, the Northern Warfare Training Center, and the Alaska Military District. The bulk of the troops were stationed at Forts Richardson, Wainwright, and Greely. Major units of the mechanized infantry brigades, which were converted from two infantry battle groups, are an infantry battalion, a mechanized infantry battalion, an artillery battalion, an engineer company, and a tank company.

Since ground transportation networks in Alaska are limited and many areas are accessible only by air, USARAL forces engage regularly in air transportability and airborne training. Joint air mobility exercises provide training and a means of evaluating the readiness of forces to respond to contingencies anywhere in Alaska. Some half-dozen small-scale joint exercises are held each year—intratheater exercises conducted with the Alaskan Air Command. Annual Polar Series exercises are the largest held in Alaska. Some 14,000 Army and Air Force personnel, U.S. and Canadian, participate in the strategic mobility exercises conducted under joint and combined auspices to provide training for operations on a nuclear battlefield in a primitive northern area.

U.S. Army Forces, Southern Command

The Army component of the unified U.S. Southern Command, defending the southern approaches to the United States, is U.S. Army Forces, Southern Command (USARSO). Located at various posts in the Panama Canal Zone, USARSO in 1965 had an infantry brigade, an air defense battalion, and a Special Action Force. Major units of the brigade were a mechanized infantry battalion, an infantry battalion, and an airborne battalion. In Puerto Rico, USARSO had the subordinate Antilles Command, with headquarters in San Juan.

Operations in the Dominican Republic

On April 24, 1965, dissident military elements in the Dominican Republic attempted to overthrow the controlling governmental junta and restore former President Juan Bosch to power. In Santo Domingo, the capital, the rebels attacked police headquarters, seized arms, and passed them out to civilians in the city. Opposition to Bosch's return led to civil war.

The United States became increasingly concerned for the safety of its citizens in the island country as opposing factions battled for control of Santo Domingo. Units of the Atlantic Fleet were ordered to the Dominican Republic and evacuation of American citizens from the war-torn city began on April 27. The inability of either side to insure the safety of Americans and a desire to strengthen the security at the American Embassy led to the landing of U.S. Marine units on the following day.

The breakdown of law and order continued on April 29 and there were indications that Communist elements were playing an increasingly important role in the revolt. At the request of the American Ambassador, the remainder of the 6th Marine Expeditionary Unit landed that day and two battalion combat teams of the Army's 82d Airborne Division were airlifted from Fort Bragg, N.C., to the Dominican Republic. Elements of the airborne force began landing at San Isidro airfield early on April 30.

While Marine and Army units linked forces and developed evacuation routes for Americans and other foreigners seeking to leave Santo Domingo, a cease-fire between rebel and junta forces was arranged on May 1. Next day an International Safety Zone was established in Santo Domingo and additional 82d Airborne and Marine elements were flown in. By May 3, U.S. forces had established a perimeter around territory controlled by the rebels in Santo Domingo. Army Lt. Gen. Bruce Palmer, Jr., assumed command of U.S. land forces on May 1, and was designated Commander, U.S. Forces in the Dominican Republic, on May 7.

Although the cease-fire was formalized on May 7, sporadic small arms fire broke out causing casualties among the American, rebel, and junta forces. American medical units administered to casualties and the sick on both sides.

While political negotiations continued in an effort to bring an end to the fighting and formation of a caretaker government that would maintain control until elections could be held, U.S. military units were joined by forces furnished by other members of the Organization of American States. On May 23 an inter-American force, later designated the Inter-American Peace Force, was set up. On May 28 Brazilian General Hugo Panasco Alvim became Commander and General Palmer the Deputy Commander. Augmenting the forces furnished by the United States and Brazil were contingents sent from Honduras, Nicaragua, Costa Rica, El Salvador, and Paraguay.

As these contingents arrived and took up positions in the International Safety Zone, selective withdrawal of U.S. forces was begun. Further reductions will follow as a political solution is worked out and stability returns to the Dominican Republic.

Continental United States

Continental Army Command

Several major organizational changes were carried out or planned during the fiscal year within the Continental Army Command (CONARC). On November 19, 1964, the Secretary of Defense announced the projected consolidation of First and Second U.S. Armies. The consolidated area will be designated the First U.S. Army, with headquarters at Fort Meade, Md. Fort Jay, N.Y., former home of the First Army, will be closed. The Second Army will be inactivated. July 1, 1965, will be the initiating date for the transfer of missions and consolidation of functions. The consolidation is expected to save 1,077 military and 958 civilian spaces, with an estimated total recurring annual saving of over \$14 million plus an estimated \$7 million to be realized as the fair market value of Fort Jay.

Another major change in organizational structure centered around the experimental 11th Air Assault Division. Division testing was completed in fiscal year 1965 and in the closing month of the period the decision was made to organize an airmobile division as a part of the 16-division force structure. Personnel and equipment for 1st Cavalry Division (Airmobile) will come from the 2d Infantry and 11th Air Assault Divisions at Fort Benning, Ga.

During the year there were numerous deployments and redeployments between the continental United States (CONUS) and Europe and the Pacific areas. Except for one armor battalion, the last of the combat units sent to Europe during the Berlin buildup were returned to the United States. The largest of these is the 11th Armored Cavalry Regiment now at Fort Meade, Md. The logistical support units returned from Europe were reorganized and, together with some other newly activated units, have been earmarked for rapid deployment to France if the line of communications from French ports to U.S. Army forces in West Germany should again be needed. PERSHING and SERGEANT missile battalions have been organized, trained, and deployed to replace older weapon systems. A number of aviation and logistical support units have been deployed to Southeast Asia, including many activated or reorganized prior to deployment.

A large increase in the number of contingency plans and resulting requirements for additional troop units has made obsolete the Strategic Army Corps (STRAC) and the associated troop list, since neither includes all Army units available for contingency operations. Therefore both have been abolished and the terms deleted from the Army lexicon. The STRAC troop list has been replaced by an ARSTRIKE (Army Component, U.S. Strike Command) troop list containing essentially all combat and combat support units operationally ready in

other than school troops and special assignment units. CONARC will publish for contingency planning a new troop list of all deployable active Army and reserve component units.

A new Recruiting Command has been established under CONARC to centralize control of those functions.

Air Defense

During the fiscal year, active Army and National Guard (ARNG) personnel manned NIKE-HERCULES and HAWK missile batteries on a continuous combat-ready status. These batteries of the Army Air Defense Command protected selected population centers, industrial complexes, and strategic retaliatory forces against air attack.

The program to convert manning of certain NIKE-HERCULES on-site batteries from active Army to ARNG units has been completed. ARNG units now man 48 on-site batteries in the continental United States, plus six on-site batteries in Hawaii.

The NIKE-X ballistic missile defense system is being developed as an advanced defense against intercontinental ballistic missiles (ICBMs) and against shorter range ballistic missiles such as those launched from submarines. The NIKE-X, an outgrowth of the NIKE-ZEUS system, is considerably more effective than the ZEUS against attacks of many missiles arriving almost simultaneously and accompanied by penetration aids such as sophisticated decoys. The NIKE-X is unique among Army systems in design and function and will be the first to use multifunction phased array instead of conventional radars. The SPRINT interceptor missile, a part of the NIKE-X system, has the highest acceleration of any Army guided missile ever developed. The system may be tailored to meet various kinds of threats.

Civil Defense

The Secretary of Defense, in his statement before the Armed Services Committee of the House of Representatives in February 1965, ranked the civil defense program with the Strategic Offensive Forces and the Strategic Defensive Forces, naming it one of the three major programs of the general nuclear war forces. His statement also included the following:

The strategic objectives of our general nuclear war forces are:

1. To deter a deliberate nuclear attack upon the United States and its allies by maintaining a clear and convincing capability to inflict unacceptable damage on an attacker, even were that attacker to strike first.
2. In the event such a war should nevertheless occur, to limit damage to our populations and industrial capacities.

The first of these capabilities (required to deter potential aggressors) we call assured destruction; i.e., the capability to destroy the aggressor as a viable society, even after a well-planned and executed surprise attack on our forces.

The second capability we call damage limitation; i.e., the capability to reduce the weight of the enemy attack by both offensive and defensive measures and to provide a degree of protection for the population against the effects of nuclear detonations.

* * * * *

The ultimate deterrent to a deliberate nuclear attack on the United States and its allies is our clear and unmistakable ability to destroy an aggressor as a viable society, even after our forces have been attacked. But if deterrence fails, whether by accident or miscalculation, it is essential that forces be available to limit the damage of such an attack to ourselves and our allies.

* * * * *

... analysis clearly demonstrates the distinct utility of a nationwide fallout shelter program in reducing fatalities, at all levels of attack. . . .

Fiscal year 1965 was the fourth year of continuous progress and growth of the nationwide fallout shelter system. At the end of the year, fallout shelter space for approximately 136 million persons had been located; space for nearly 76 million had been marked; space for more than 77 million had been licensed; and space for nearly 34 million had been stocked. Most of the fallout shelter space needed to accommodate the total population at work, at home, or in school can be obtained most economically by continuing to identify, mark, and stock fallout shelter space inherent in existing and planned structures, by making low-cost ventilation improvements, and by identifying fallout-shielded areas in small buildings.

The residual shelter needs will have to be met by providing fallout shelter through new construction. Efforts during fiscal year 1965 were concentrated on exploiting fully the existing potential for fallout protection and determining more precisely the exact nature of the residual shelter requirement. This policy will be continued during fiscal year 1966. Principal aspects of the program designed to expand the inventory of the nationwide fallout shelter system include:

1. Extension of the shelter survey program to include structures too small to qualify as public fallout shelters, i.e., small business facilities and residences.
2. Provision of advice and assistance to architects and engineers on the use of various design techniques in order to stimulate development of dual-purpose, low-cost fallout shelters in new construction or major structural modification projects.
3. Development of community shelter plans to identify more precisely the residual shelter requirements and to insure effective use of available shelter space by matching people with specific shelter areas.
4. Provision of portable ventilation kits that will significantly increase the capacity of many existing public fallout shelters where additional space is needed.

In addition to expanding the nationwide fallout shelter system, the operation of the following complementary civil defense systems was continued and improved to make possible the effective use of shelters and the conduct of recovery operations: (1) A *nationwide warning system* to alert people to impending attack and to direct them in seeking shelter; (2) *communications systems* to keep people informed and to direct emergency operations; (3) *nationwide monitoring and reporting systems* to collect, evaluate, and disseminate information on radioactive fallout; and (4) a *damage assessment system* to provide guidance for preattack planning and postattack operations.

Federal assistance to State and local governments was continued to encourage them to further develop and operate civil defense programs. This included technical guidance, training and education, and financial assistance. Research was conducted to provide perspective and develop guidance for all elements of the civil defense program. Supporting activities included those designed to inform the public of civil defense, to gain the participation and support of industry and national organizations, and to maintain liaison with civil defense authorities of friendly foreign countries.

The organization responsible for conducting the civil defense program at the Federal level is the Office of Civil Defense (OCD) in the Office of the Secretary of the Army. At the head of the OCD is the Director of Civil Defense, who is directly responsible to the Secretary of the Army and whose position is considered equal to that of an Assistant Secretary of the Army. A summary account of the status of the civil defense program is included as an annex to this report. A more detailed report is published separately by the OCD.

Military Support of Civil Defense

By act of Congress, civil defense is a civil responsibility vested jointly in the Federal Government and in the several States and their political subdivisions. The national civil defense program is an integral part of the national security posture and is an essential element of our deterrent posture. Effective civil defense programs contribute to the total military capability of U.S. forces. Military support to civil authorities in civil defense operations is an emergency task within the mission of all Federal active duty and reserve units of the military Services and defense agencies.

During the fiscal year the Army, to which is delegated primary responsibility for military support of civil defense, revised the existing concept for controlling the Service effort. The revised concept, which has been adopted by the Department of Defense, has the objective of insuring appropriate, timely, fully coordinated support of civil defense at national, regional, and State levels. Nothing in the

concept modifies the existing DoD policy that military assistance will complement and not be a substitute for civil participation in civil defense.

Heretofore, military support was to be controlled by a military chain of authority which extended only from the Department of the Army, through USCONARC, to the six CONUS armies. No standardized system existed for centralized control of support at State and lower levels. To offset this shortcoming, State-level headquarters have been established to plan, coordinate and control military support of civil defense in each state. The postattack chain of authority now extends from the Department of the Army, through USCONARC and the CONUS armies, to the new State-level headquarters. Preattack planning is to be accomplished on a cooperative basis. By consent of the State governors concerned, ZI Army commanders will exercise approval authority over State-level plans for civil defense assistance.

The State adjutants general and the Army National Guard portion of their staffs have been used to organize the new military headquarters. Each adjutant general has responsibility for planning use of all military resources which may be made available to support State civil defense operations.

CONUS Army commanders will designate active and reserve forces, to include those made available by the other Services, which could be used temporarily to support civil defense. During the planning phase the adjutant general and his military-support-of-civil-defense staff retain their State status, but are subject to the planning guidance of the appropriate CONUS Army commander. When a civil defense emergency occurs, the State adjutant general will become the State military commander on active Federal duty. He will then supervise execution of the plans drawn up to control military support of State civil defense, with forces placed at his disposal for this purpose.

The Army through the Corps of Engineers and with assistance from the Navy's Bureau of Yards and Docks is responsible for a major portion of the national fallout shelter survey and marking program, for updating that program with added features, managing community shelter planning, performing special research and development service, and for rendering engineering support in special tasks. The Corps of Engineers also assists in training civilian architects and engineers in fallout shelter analysis.

During the fiscal year, more than 11,400 facilities with an aggregate capacity for 14.2 million persons were surveyed, while more than 8,000 facilities with shelter space for a total of 12.1 million persons were marked. The survey program was directed at requirements for trapped water, telephone jacks, food supplies, and equipment for sanitation, ventilation, and radiation detection.

During the last quarter of the fiscal year, preparations were begun to administer the national community shelter planning program, initially to include approximately 200 communities at an estimated cost of \$4 million. This program will help insure the efficient use of currently available shelter through assignment of population to specific shelter areas. Agreements to install shelters and emergency operating equipment were negotiated with owners of more than 230 additional selected radio stations and more than 230 additional warning points, and the Army Corps of Engineers continued to manage and operate the Protective Structures Development Center at Fort Belvoir, Va., for the Office of Civil Defense.

Civil Disturbances

The Department of the Army has the primary Service responsibility for providing military support to civil authorities in domestic disturbances. In a period of heightened civil rights troubles the Army participated with the Departments of Defense and Justice in planning to meet contingencies that might arise in connection with court-ordered school desegregation. Active Army and National Guard plans were prepared to meet desegregation schedules for specific locations in Louisiana, Mississippi, and Alabama in August and September of 1964. Local authorities maintained order in all cases and Federal aid was not required.

Plans were also developed to provide military assistance to State authorities should this be necessary in connection with a civil rights march from Selma to Montgomery, Ala., during the period of March 21-27. This assistance was authorized and was provided, under Executive Order 11207, from March 20 to 29. The Army force of 3,522 men, including 2,397 National Guardsmen and 1,125 members of the active Army, were commanded by Brig. Gen. Henry V. Graham of the 31st Infantry Division, Alabama National Guard.

Preparations were also made but troops were not required to assist Washington, D.C., police on April 17, 1965, in handling a demonstration by 15,000 students protesting United States involvement in Vietnam.

The Army monitors all potential civil disturbance situations in view of the possibility of disorders such as those connected with civil rights, school desegregation, and protests against foreign policy.

Army Readiness

The Army emphasized readiness in the past year. The first four reports under regulations revised in April 1964 were received, reviewed, and analyzed, and the program is becoming increasingly

more effective as additional reports are received. Commanders and staffs at all levels have become increasingly acquainted with the readiness problems confronting assigned units, and corrective action has been taken or is underway. The mechanics of the reporting system have improved and the information now being developed is detailed and factual. Progress is evident as the readiness posture of the Army continues to improve during every quarter despite unprogramed requirements raised by operations in Vietnam and the Dominican Republic. The basic readiness documents have been revised for July 1965 publication.

A significant event was the initiation in February 1965 of the Program for Command Supervision of Readiness. A central feature is the provision for periodic reviews by Headquarters, Department of the Army, of the readiness posture of major commands and activities. The objective is the free exchange between major commanders and their staffs and Army Staff principals of ideas concerning improvement of readiness. Reviews consist of comprehensive presentations by individual commands as to their stewardship of readiness matters for a specific period designated by Department of the Army, and include an analysis of a command's progress and problems in the readiness area. CONARC, USAREUR, USARPAC, USARSO, Army Materiel Command, Defense Supply Agency, General Services Administration, and the Army Air Defense Command have made presentations. Other major commands and selected agencies are scheduled for early in fiscal year 1966.

During the past year Department of the Army staff readiness teams visited units stationed in Germany and at 18 CONUS installations to determine what problems faced commanders and to assist them and their staffs in understanding the objectives behind the Army readiness program. Special teams also visited selected units in the European and Pacific areas, and Fort Riley, Kans., and Fort Meade, Md., to discuss materiel readiness problems. In all cases, aggressive staff followup has resolved many readiness problems.

Special Operations

Various forms of insurgency have developed in emerging areas of the world in recent years, threatening American interests abroad and endangering governments friendly to and supported by the United States. It has become clear that such threats, especially those brought about by Communist-inspired subversive insurgency, can best be met by the selective application of preventive or suppressive measures. This can be accomplished in part through United States efforts to advise, support, and assist a threatened government in eliminating conditions that are underlying causes of insurgency.

Counterinsurgency and related stability and peacekeeping operations have been recognized as a principal mission of the Army, requiring assets from the Army as a whole. A primary requirement is to furnish unified commands with specific Army skills that can be used to reinforce the efforts of U.S. military assistance forces (i.e., advisory groups and missions). A primary source of such skills is the Special Action Force (SAF), tailored for geographic areas where insurgency is a concern. The SAF provides, usually in mobile training teams, two basic types of advisory skills that are particularly valuable in preventing oppressive insurgency: Military counterguerrilla tactics and techniques represented in the Special Forces Group (SFG), and the wide range of internal development assistance, which includes military civic action and nation-building advisory skills (in engineer, communications, medical, civil affairs, military police, intelligence, and psychological operations areas) of other SAF units. Six Special Action Forces embracing seven Special Forces Groups are in being.

In 1965 there were minor adjustments in the strength and deployment of special forces, including a reallocation of spaces to meet the requirements of unified commands, and deployment of the 5th Special Forces Group to Vietnam. The 3d (Africa) and 6th (Middle East) SAFs were placed under the control of STRICOM. Special forces and associated psychological warfare elements were deployed to the Dominican Republic on a temporary basis in April. Special Forces Groups are presently stationed at Fort Bragg, N.C., and in Vietnam, Okinawa, Germany, and Panama.

In Vietnam, the 5th SFG continued its mission of training and advising ethnic groups in remote areas, and, among the more recently assigned missions, provided modified detachments to serve as sector and subsector advisory teams in selected areas. All units were actively supporting unified command counterinsurgency programs and providing assistance requested by host countries. The Latin American SAF, for example, organized and provided special warfare Mobile Training Teams for 17 Latin American countries. The teams conducted counterinsurgency tactical instruction for host country armed forces, and training in psychological operations, civic action, combat intelligence, communications, wheeled vehicle maintenance, small unit tactical training, and in the preparation of counterinsurgency instructional programs.

Several major programs were launched in this period to update psychological operations doctrine and organization in keeping with current concepts.

Following the 1963 Worldwide Psychological Operations Conference at Fort McNair, Washington, D.C., the Army developed and issued in September 1964 a program for a phased improvement of its capa-

bility to conduct military psychological operations. Tasks included the development of new doctrine to meet requirements for operations such as those in Vietnam and the Dominican Republic, improvement in personnel and research areas, and the publication of guidance for the Army concerning its responsibilities for supporting and assisting the U.S. Information Agency (USIA) in its mission of conducting the national psychological operations effort in the cold war. Originally published with a 5-year schedule, the program has been accelerated as a result of recent experiences.

In March 1965 action was started to integrate Army psychological operations personnel in Vietnam within an expanded USIA organization. The resulting structure, the Joint U.S. Public Affairs Office (JUSPAO), extends the U.S. psychological operations effort and brings about a more coordinated program countrywide. The Army, with a psychological operations advisor in each sector advisory team, is a principal operating arm of this organization, but integration with USIA has been accomplished at all levels. An Army general officer will direct all field service activities (supervision of psychological operations and U.S. personnel in the field), and an Army colonel will head the planning staff for the U.S. Public Affairs Office. Interagency coordination will be helpful in doctrine development and training.

The quick response of the 1st Psychological Warfare Battalion to the psychological operations requirements for the Dominican Republic demonstrated the readiness of the battalion and the effective coordination between the Army and USIA. Within a few hours of its arrival in Santo Domingo, the battalion had planned, printed, and distributed by air 20,000 Spanish-language leaflets explaining the U.S. presence. The battalion also conducted radio and loudspeaker broadcasts.

III. Plans, Training, Intelligence, and Communications

Plans

Army Force Development Plan

The Army Force Development Plan, one of the Army's family of plans described in some detail in fiscal 1964 report, is a blueprint for the Army and the principal instrument for outlining detailed changes in the Army Five-Year Force Structure and Financial Program. The plan is the product of a detailed analysis of the approved program from the viewpoint of the missions assigned to the Army and the objectives for the forces that must accomplish the missions. It presents alternatives to the Five-Year Force Structure and Financial Program—alternatives designed to correct deficiencies and to insure achievement of balanced and progressively improving capabilities.

The third issue of the Army Force Development Plan, 1966-85 (AFDP 66-85), was published in April 1965. This issue, as opposed to the previous two, was approved not only as a basis for further planning but for programing action. Thus the Army Staff set to work immediately after approval to correct deficiencies and reduce problems revealed in the development of the plan.

In the Army Force Development Plan 1966-85, the currently programmed Army was analyzed in terms of structure, readiness, modernization, and concepts. The basic measure was the Army objective force; the basic aim was to determine shortfalls and deficiencies of the current program with respect to the objective force. Improvements were proposed in a series of alternatives representing three separate levels of resource availability and allocation: The current program level, a level to provide for the highest priority requirements, and one designed to satisfy structure, readiness, and modernization objectives.

A new addition to the latest edition of the Army Force Development Plan was the development of a rationale for evaluating the balance achieved in the Army between structure, modernization, and readiness. Measurement criteria were established which confirmed the validity of the Army's effort to achieve this balance. The approach is subject to refinement and more precise definition, but holds promise for future evaluations.

Doctrine and Systems

In the past year the Army has evolved new and forward-looking concepts and doctrine to improve its ability to carry out its role as the Nation's land force. The Army and Air Force have agreed on a new concept for joint air-ground coordination, evolved when study and tests disclosed weaknesses in the procedures for requesting and providing air support. The concept streamlines request and coordination procedures at various Army echelons and reduces the number of headquarters directly handling requests. The new operational procedures, together with improvements in communications, will avoid delays and accelerate the response to requests for tactical air support.

The Joint Chiefs of Staff have agreed to a broad concept for the control of air space. The Army is working with other Services to develop doctrine and procedures in accordance with this concept. This is a complex matter involving not only the integration of aircraft missions of the several Services but of air defense and supporting surface fires in the combat zone. Further progress has also been made in the development of doctrine and concepts for special operations in under-developed areas.

Improving the soldier's weapon systems is a never-ending pursuit. In 1965 a comprehensive study and test of all available individual infantry weapons was begun. Known as the Small Arms Weapons Systems (SAWS) project, the study will consider not only the technical characteristics of small arms, but the tactics and techniques of infantry combat which best exploit particular features of specific weapons. The purpose of the project is to determine the best weapon/tactical doctrine combination for the combat infantryman now and in the immediate future.

Also during 1965 the Army started a program to mount the SHIL-LELAGH weapon system on a limited number of existing M-60 tanks. This will provide substantially increased firepower for our forces in Europe.

The Army's requirement for a mechanized infantry combat vehicle (MICV) that will provide a commander with options in mounted and dismounted combat has led to the production of several prototypes. Such a vehicle must permit troops to dismount rapidly, provide adequate storage, and accommodate a vehicular rapid fire weapon system. Mobility characteristics should equal or surpass those of the contemporary main battle tank.

In November 1964 the Army embarked upon a program to employ interim forward air defense systems as soon as possible. The program consists of a mix of missiles and guns. The missile is the CHAPARRAL, a surface-to-air version of the SIDEWINDER. The gun will be

selected from three candidates, two of which are configurations of multibarreled 20-mm. air defense guns and the other is the twin 40-mm. M-42 Duster. A test program will determine the best of the three. The CHAPARRAL and guns will be mounted on full-tracked vehicles.

For over 2 years the Army has been studying and testing advanced air mobility concepts, with particular emphasis on an airmobile division organization. As a result of this testing, the Secretary of Defense on June 15, 1965, authorized the Army to organize an airmobile division as a part of the 16-division force structure.

The airmobile division will be established by a redesignation of units currently available. The 2d Infantry Division will be transferred from Fort Benning, Ga., to Korea and the 1st Cavalry Division will be transferred from Korea to Fort Benning with all personnel and equipment of both divisions remaining in place and being absorbed by the arriving unit. Becoming operational at Fort Benning, the 1st Cavalry Division will also acquire most of the remaining personnel and equipment of the 11th Air Assault Division (Test), the test unit will be inactivated, and the 1st Cavalry Division (Airmobile) will become the Army's first regular division of its type.

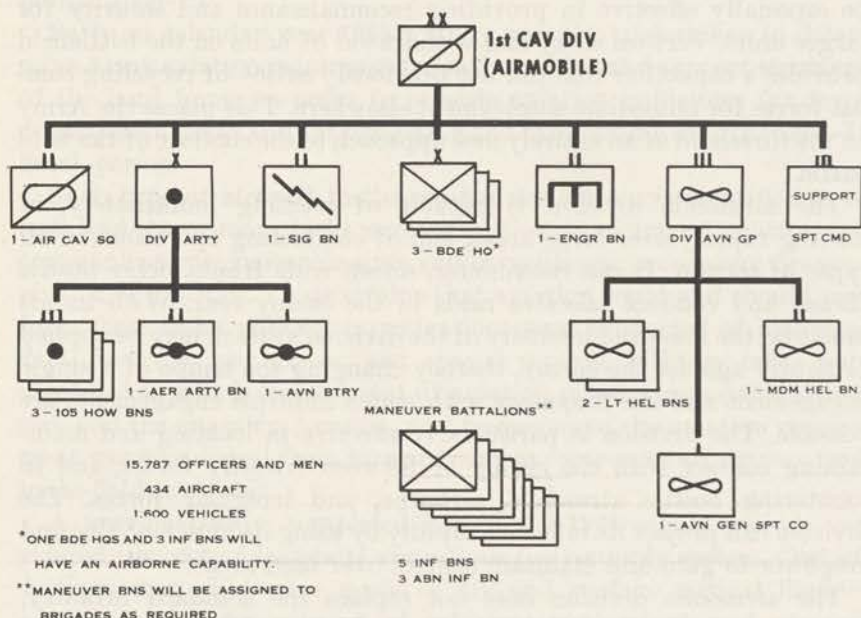


Figure 2. Organization of the Army's new airmobile division.

The new airmobile division will have 434 aircraft (428 helicopters, 6 fixed-wing) as compared to 101 aircraft (97/4) in the ROAD infantry, mechanized, and armored divisions. With this number of aircraft, one-third of the assault elements of the division can be airlifted simultaneously. The remainder would be airlifted by operation of a shuttle or by supporting Army or Air Force aircraft. To increase the division's versatility, one brigade will have a parachute jump capability.

Organic ground vehicles will number about 1,600 as compared to approximately 3,200 in the ROAD infantry division. The unit can be completely transported by Air Force transport aircraft.

The airmobile division improves the balance between firepower and maneuver which had been upset by significant increases in firepower that have taken place since World War II while only relatively minor improvements have been made in battlefield mobility. Use of the helicopter to move men and weapons around the battlefield will help to redress this imbalance, enabling the Army to achieve greater freedom of movement and exploit the principle of surprise to an unprecedented degree.

The new type division has unique capabilities that improve combat effectiveness, particularly in low- and mid-intensity operations. It will be especially effective in providing reconnaissance and security for larger units. Vertical entry and withdrawal of units on the battlefield provides a capability that did not previously exist—of recycling combat forces for immediate employment elsewhere. This places the Army on the threshold of an entirely new approach to the conduct of the land battle.

The airmobile division is capable of reacting immediately, of moving rapidly over large areas, and of conducting operations in all types of terrain. It can reconnoiter, screen wide fronts, delay hostile forces, and conduct selective raids in the enemy rear. With its air mobility, the mass and intensity of the division's attack may be applied promptly against the enemy, thereby changing the tempo of a single engagement and the frequency with which multiple engagements are possible. The division is particularly effective in locating and maintaining contact with the enemy or between friendly forces, and in countering hostile airmobile, airborne, and irregular forces. The division can project its influence rapidly by using its high mobility and firepower to gain and maintain control over land areas.

The airmobile division does not replace the standard infantry, armored, or mechanized divisions. It provides capabilities that are not found in the other divisions.

Army Aviation

The Army opened fiscal year 1965 with 8,276 aviators and closed the period with 9,074. Aviation materiel assets also improved as new model aircraft entered the inventory and some obsolescent aircraft were retired. As the year closed, aircraft assigned to the active Army, the Army Reserve, and National Guard, and the aviation training schools at Fort Wolters, Tex., and Fort Rucker, Ala., exceeded 7,000. More than 2,300 of the aircraft were deployed in oversea commands, including Vietnam.

The Department of the Army trained 1,515 aviators for the Active Army in fiscal year 1965, including 629 fixed-wing and 886 rotary-wing pilots. Another 238 were trained for the reserve components and under the foreign military training program. Beginning with the first class to enter training in the year, each rotary-wing student received instrument flight training, as did increasing numbers of qualified helicopter pilots, thereby enlarging the Army's capability of operating helicopters under instrument flight conditions. Meanwhile, the Army was directed to reduce its planned output for 1966 from 1,551 to 1,131 aviators. An outgrowth of this decision from higher headquarters was a study to determine aviator requirements of the active Army for the period 1966-70.

Early in calendar year 1965 a study was also undertaken to determine Army aviation requirements for the combat and support structure of the land forces in order to provide aviation guidelines for force development plans and for budgeting and programing over the 1966-71 fiscal period.

Each type of aircraft in the combat structure was identified as to task, and the primary tasks were established as command, control, and communications; reconnaissance and surveillance; maneuver; fire support; and logistics. To determine that aviation could and should perform these tasks, parallel investigations were conducted of historical data, doctrine, war games, and special reports. Military tasks were identified in which employment of aviation posed a reasonable potential, and the quantity, location, and frequency of the aviation requirement was established from forward combat companies all the way back to the field army rear.

A previous study, completed late in the 1964 report period, considered the cost of logistical aircraft in the resupply system. Cost effectiveness studies were made of air and surface tactical lines of communication for support of infantry, mechanized, and armored ROAD divisions operating in selected sectors of South Vietnam, Thailand, Korea, and Iran. For air transport, the C-130B, CV-7A, XC-142A, and CH-47A aircraft were compared, while all modes of surface

transportation, including roads, rail, water, and pipeline, were considered. Line of communication system costs and compositions were determined for all-air, all-surface, and mixed-air-and-surface daily resupply of ROAD divisions. Related matters were analyzed, such as unscheduled retail resupply missions, airfield and airstrip availability, and air drop. The study concluded that all of the aircraft could be used to economic and operational advantage in performing resupply missions. Tonnage, length of haul, and airfield construction requirements at the destination were determined to be more significant factors than cost effectiveness in determining aircraft preference.

Training and Authorization

Continuing the general invigoration of recruit training reported on last year, Army training centers have been upgraded in priority levels, and refinements have been introduced into the process by which non-commissioned officers are selected for duty in the centers. Personnel have been more carefully selected, instructor training has preceded assignment to training cadres, and certain prestige titles and tools have been brought to the task. Standard tables of distribution have been developed for basic combat training elements in the Army training centers, and manning will be at 100 percent. Captains and promotable first lieutenants will be assigned to command all center training companies, many of which have been under second lieutenants. Training tests have been revised to include full-cycle formal commander's evaluation of each trainee, and this will provide other commanders with a helpful appraisal of a new man. An incentive for a trainee to excel exists in a program of accelerated promotion from recruit to grade E-2. These actions contribute to making the trainee's first impression of the Army one of competence and professionalism, and help form the foundation for the standards of military discipline, character, integrity, and reliability that are the hallmarks of the good soldier.

The Army school system makes its contribution to the readiness and effectiveness of our land forces by providing the training and education that develop our officer and enlisted personnel. More than 168,000 personnel completed resident courses of instruction in 43 Army schools and colleges in 1965. Scientific, academic, and technical education not available within the Army was provided by civilian institutions and industrial organizations to 685 individuals. Buildup of Army forces in Vietnam required rapid adjustments in the school system, in student numbers, and in course offerings.

Integration of automatic data processing (ADP) training into the school system was continued, and will be expanded as ADP applica-

tion spreads throughout the Army's administrative and tactical structure.

To reduce pipeline time for newly commissioned officers and to provide additional motivation by early identification with a unit, the U.S. Military Academy Class of 1964 was assigned directly to units without attendance at basic officer courses. Only the Ranger course was mandatory. Expansion of facilities at West Point to accommodate the increased size of the Cadet Corps authorized by Public Law 88-276 was begun in June 1965 when ground was broken for the Washington Hall barracks-mess installation. This structure will provide mess facilities for 4,500 cadets and 800 additional barracks spaces.

The Defense Information School completed its first year under Army operation as executive agent for the Department of Defense. The school will be relocated from Fort Slocum, N.Y., to Fort Benjamin Harrison, Ind., early in the 1966 fiscal year. In other joint training, the Army's Transportation School introduced a course in Defense transportation management under OSD auspices, and U.S. Information Agency personnel being trained for psychological operations employment in Vietnam received a briefing and orientation at the Army's John F. Kennedy Center for Special Warfare, Fort Bragg, N.C.

The Army has proposed a Special Training and Enlistment Program (STEP) to give educational training or medical treatment to some of the volunteers for enlistment who are now being rejected because they do not meet Army standards. If the training or treatment brings a man up to standard, he would then serve the balance of a 3-year tour; failing to meet the standards, he would be discharged. The purpose of the program is to increase the number of volunteers accepted by the Army without lowering standards. For each volunteer, one less man must be acquired by draft.

The program, included in the 1966 appropriations request and awaiting Congressional approval, would be conducted at Fort Leonard Wood, Mo. Trainees with medical defects would receive corrective treatment on arrival. Having passed the regular physical examination, normally within 6 weeks, they would proceed with basic and advanced individual training and continue through the balance of a 3-year tour like typical regular Army enlistees.

Educational deficiencies would be corrected by daily instruction in such subjects as English, arithmetic, social studies, and science at the same time that the trainees were going through basic combat training. The regular 8-week basic combat training period would be extended to 14 weeks to compensate for classroom time. Trainees completing the basic combat training and achieving a rating equal to or higher than the standard enlistment score would be sent to advanced individual

training. Below-standard individuals would be sent to a modified advance individual training and general educational development course to receive additional attention. After 6 months, qualified men would go to active units and others would be discharged. The STEP would start approximately 90 days following Congressional approval.

Control of resources and an accurate determination of requirements for both equipment and personnel are central to the effective management of the Army. To further these ends a new system founded on two basic authorization documents has been developed. The instruments are the Table of Organization and Equipment (TOE) and the Table of Distribution and Allowances (TDA).

The TOE reflects a unit task and the personnel and equipment needed to accomplish it. The TDA, combining in one document the current Table of Distribution and Table of Allowances, prescribes the organizational structure and the personnel and equipment requirements and authorizations for a specific military unit to perform a mission for which there is no appropriate TOE.

The new system provides for the concise tabulation of data relating to the development of new equipment, so that the Army will be prepared to operate and maintain this equipment when it is placed in the hands of troops. Since this system is so comprehensive, involving numerous agencies and affecting Army-wide supply systems, administrative procedures, and programs, conversion is phased over 2 years.

Revision and updating of TOE's, to bring into the Army force structure new tactical concepts and new items of equipment, is a continuing process. In addition to actions described earlier in this section concerning the organization of a new airmobile division, a new TOE was approved in April 1965 for the Army's airborne divisions. The principal combat units of the new airborne division are nine infantry battalions, three 105-mm. artillery battalions, and a cavalry squadron. The division has 103 aircraft, mostly helicopters. Total airlift required to move the divisions has been significantly reduced.

In another important organizational move, also in April, the Army began reorganizing its administrative support functions under a concept identified as Combat Service Support to the Army (COSTAR II). This is aimed at bridging the gap between functionalized service support available in the combat divisions and the functionalized supply management in the continental United States. Under the old system, a field army commander had to deal with seven separate service branches to plan for and carry out supply and administrative requirements. Under COSTAR II, all such functions are grouped under one agency—the support command—reducing personnel and improving the responsiveness of the system to the needs of the combat com-

mander. The concept should be fully in effect by the third quarter of fiscal year 1966.

In 1964 all proponents of Tables of Allowances (TOAs) were directed to review their authorizations and identify items that could be deleted without a loss of combat effectiveness. At the close of this fiscal year, only 15 tables remained to be processed out of a starting total of 405. Savings are estimated to be over \$529 million, with more than \$341 million in cost reduction and almost \$188 million in cost avoidance.

Intelligence Activities

The development of sophisticated weapon systems since World War II has placed a premium on Army surveillance and reconnaissance capabilities. Over the past several years these matters have been centralized and emphasized. Modifications have been scheduled for the MQM-57A drone units, involving the control system and other technical equipment, to permit low altitude tracking. Difficulties encountered with the development of the MQM-58A, reported last year, coupled with proposals for new drone systems, have led to a restudy of the entire drone program.

Meanwhile, a program has been developed to improve the Mohawk (OV-1) aircraft and thereby the aerial surveillance capability of the ground commander. Modernization will include the latest surveillance, navigation, data annotation, avionics, and engine equipment. It may be noted that Army surveillance and target acquisition (ASTA) units and equipment have been deployed in Vietnam since 1962. More sophisticated sensors have been sent to these units in 1965 and these are proving their capability in night and day operations and under adverse weather conditions.

The organization and disposition of Military Intelligence units in both the active Army and the reserve forces remained relatively stable during the year. One step of importance was the establishment at Fort Bragg, N.C., of the Continental Army Command Tactical Intelligence Center (CONTIC) to provide a central point within CONARC to coordinate tactical intelligence support in planning, training, inspections, exercises, and personnel.

Intelligence training has been accelerated during 1965 in the active Army, while in the reserve components attention centered on achieving an effective personnel and training status. The planned realignment of the Reserves would affect military intelligence units and require adjustments to avoid undue reduction of the Reserve military intelligence capability. In realignment planning, all of the Military Intelligence Detachments, Strategic, were retained in the structure. These small units are directly affiliated with selected universities or industrial

organizations and develop strategic studies under OSD or DA supervision. Unique skills are involved so that it takes much time to train these technical and professional teams. Attention was also focused on the individual intelligence reservist, with respect to unit and project assignment.

Army attachés were assigned to 85 foreign stations during 1965. New offices were opened at Kigali, Rwanda, and Blantyre, Malawi, while those at Panama City in Panama, at Saigon, Vietnam, at Usumbura in the Kingdom of Burundi, and at Phnom Penh, Cambodia, were closed. In December 1964 the Secretary of Defense created the Defense Attaché System, placing all Service attachés under the Defense Intelligence Agency (DIA) for operational and administrative control to be effective with the opening of the 1966 fiscal year.

Communications and Electronics

In 1965 the integration and consolidation of the worldwide communications facilities of the three Services into the Defense Communications Systems (DCS) progressed markedly. Facilities in Alaska, Eritrea, Japan, the Philippines, Puerto Rico, Panama, and Taiwan were consolidated. The U.S. Army Strategic Communications Command became fully operational and was designated the principal manager of Army strategic communications, responsible for establishing, engineering, installing, and operating assigned portions of the DCS. The Command established regional field offices in Europe, Panama, Hawaii, Eritrea, and in the continental United States.

Conversion of communications facilities and services to automatic switching continued, and the worldwide Automatic Digital Network (AUTODIN) and the Automatic Voice Network (AUTOVON) were expanded during the year. Direct long-distance dialing was made available throughout the United States and to most oversea commands.

Construction progress on the Army portion of the European Tropospheric Scatter System was impeded because of labor troubles and consequent adjustments. High frequency radio links were established for the interim.

A program to replace long-haul tactical-type communications equipment in Southeast Asia with multichannel wideband systems was started. A plan to provide high quality communications between Bangkok and Saigon was abandoned because of technical difficulties. The Bangkok terminal was switched to another location, however, and the service was provided with an interconnecting microwave radio relay to that city.

Since 1962 one Signal battalion has operated and maintained the Army in-country communications system in Vietnam. The battalion has also provided photographic and audio-visual communications center services. The strength of the battalion was periodically increased to cope with the changing situation and in March 1965 the Military Assistance Command in Vietnam authorized additional units to support the expanded role. All but one company of the augmentation had arrived by the close of the fiscal year.

During the year a mobile television unit was provided the Commander in Chief, U.S. Strike Command, to operate a special closed circuit television facility during Exercise GOLDFIRE I. The facility extended the exercise operations map and statistical charts to the exercise staff and umpires located in separate cubicles. This facilitated decision-making and simulated dispersed command activities in a tactical environment.

A closed circuit television facility also was used in the 77th Infantry Division's FAREX 64 exercise. The standard commercial television equipment employed, although van-mounted, bulky, and not ideal for field use, provided the measure of command and control that the exercise directors were striving to achieve. Its employment reduced substantially the number of messages handled by telephone, teletype, and messenger.

IV. Personnel

From the Presidential level to the lowest echelons of public service, active attention has centered on the efficient management and use of Federal personnel, military and civilian. Numerous programs to secure, retain, improve, educate, motivate, and reward Government personnel attest to the magnitude of the task of running the Nation's affairs at the seat of government and around the world under peacetime and wartime conditions.

Military Personnel

During fiscal year 1965 the authorized strength of the Army dropped from 972,000 to 961,000 despite the expanding requirements in Vietnam. The decrease was caused by the phaseout of the 11th Air Assault Division (Test), the closing of a number of military installations, and the deferment of the Special Training and Enlistment Program (see chapter III). Selective Service calls, although lower than during the previous fiscal year, were higher than had been projected. Additional draftees were needed to offset a deficit in enlistees and reenlistees.

The Army's actual strength on June 30, 1965, was 968,313 (excluding reimbursables), of which 854,755 were enlisted personnel, 97,659 were officers, 10,304 were warrant officers, 3,578 were nurses and medical (officer) specialists, and 2,017 were cadets. The ratio of officers to enlisted personnel remained relatively stable at 1 to 7.7. The operating forces accounted for 62.2 percent of Army personnel, and while the buildup in Southeast Asia increased the number of Army personnel overseas to 42 percent of strength, most other oversea areas were reduced.

Officer accessions in the year were 17,371. Of 3,258 appointed in the regular Army, 526 were from Service academies, 1,316 from the ROTC Distinguished Military Graduate Program, 15 received direct appointments from civilian life, and 1,348 were integrated from active duty.

Enlisted personnel are obtained through enlistments, inductions under selective service, and reenlistments. First enlistments fell from the 1964 level, probably due to current events and widespread speculation that the draft might be eliminated. Inductions, however, were up, offsetting a lower reenlistment rate. The Regular Army portion of the enlisted content of the Army declined slightly in 1965.

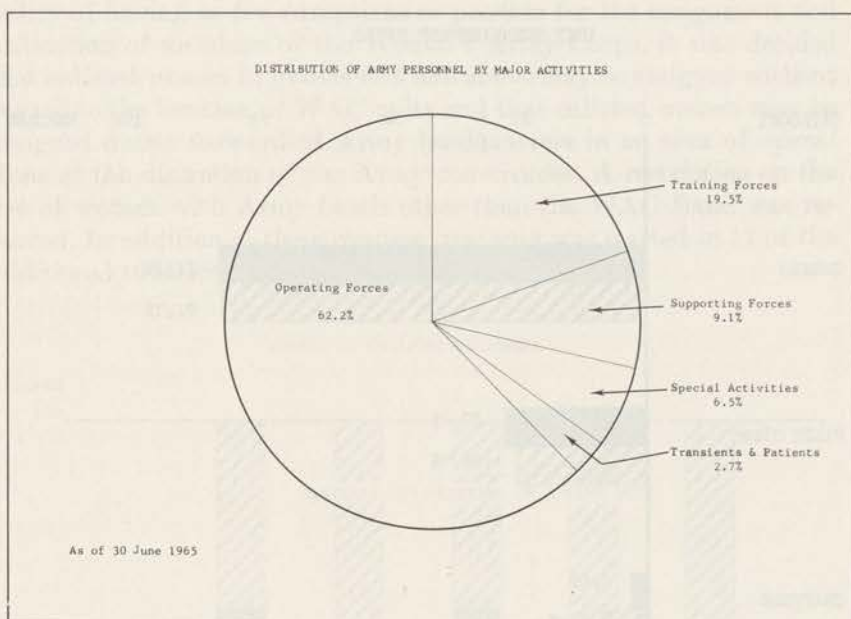


Figure 3

PROCUREMENT OF OFFICERS BY SOURCE IN FISCAL YEAR 1965

Source	Gains
Service Academies.....	524
Reserve Officers' Training Corps.....	9,886
Officer Candidate School.....	2,277
Voluntary Active Duty.....	595
Professional (JAGC, WAC, MSC, CHAP).....	581
Medical Corps, Dental Corps, Veterinary Corps.....	1,664
Regular Army Appointments ¹	19
Miscellaneous ²	65
Nurses and Medical Specialists.....	727
Warrant Officers.....	1,033
Total.....	17,371

¹ Includes 15 appointments from civil life and 4 inter-Service transfers.

² Includes administrative gains such as recall from the retired list, inter-Service transfers, and umpire and control personnel. The grand total does not include 303 personnel of the Alabama National Guard called into Federal service during civil disturbances.

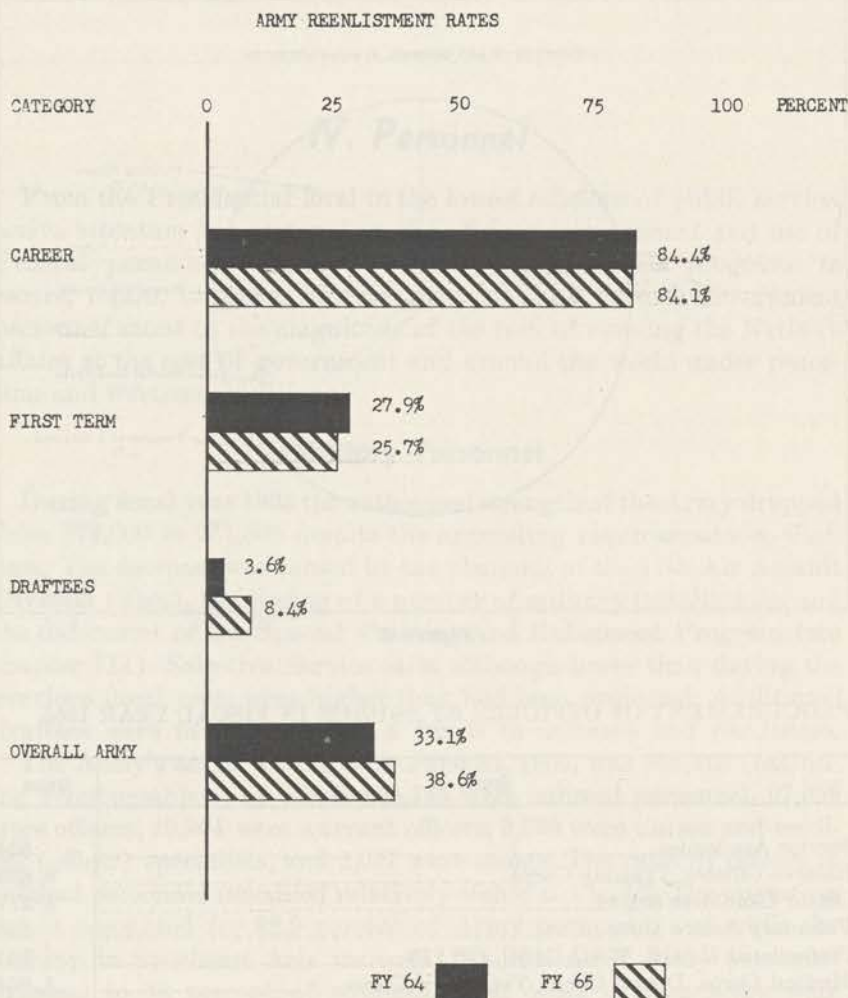


Figure 4

To improve the utilization of enlisted personnel, the Army expanded the scope of manpower management in fiscal year 1965 to include active monitoring of both the assignment and use of enlisted personnel, and special teams and agencies participated in this effort to make proper use of individual skills. In March 1965 the Army published a new regulation (AR 600-200) prescribing the policies, responsibilities, and procedures pertaining to the career management of enlisted personnel. The regulation prescribes a revised enlisted qualification record, replacing both an older version and the enlisted service record, that will provide commanders with much better information on which to base a proper assignment. In keeping with the

policy of having as few exceptions as possible for the assignment and utilization of members of the Women's Army Corps, it was decided that enlisted women in grades E-5 and above may be assigned without regard to the location of WAC units and that enlisted women may be assigned duties forward of Army headquarters in an area of operations at the discretion of the Army commander. A restriction on the use of women with Army bands other than the WAC Band was removed. In addition to these changes, training was started in 11 of the additional 16 MOSs approved in fiscal year 1964.

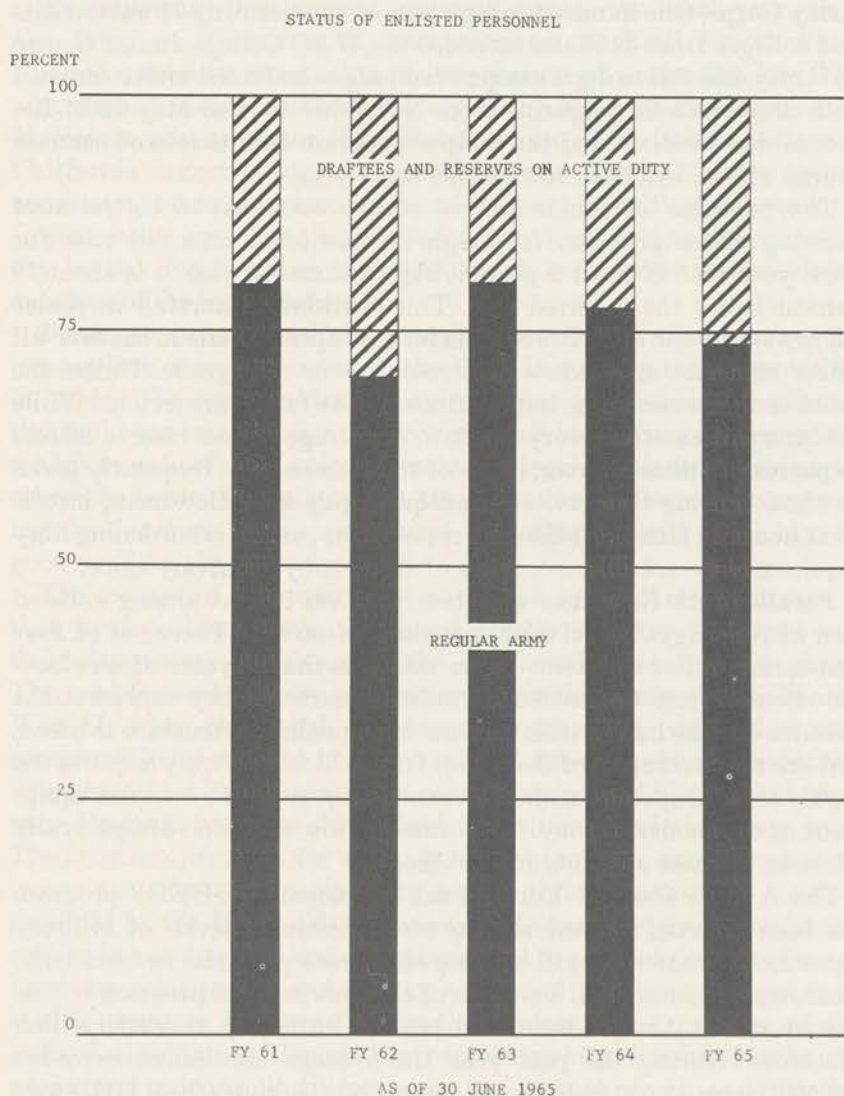


Figure 5

During the year the Army Staff conducted a study to determine the requirements in quantity and quality for officer and warrant officer aviators in the 5-year period immediately ahead. A detailed rationale and justification for periodic ground duty for officer aviators was developed, career implications in repetitive aviation assignments assessed, and an optimum mix of officer and warrant officer aviators determined in which warrant officer positions will be increased and officer positions reduced.

During the summer of 1964 a 4-week orientation course for women college students was held to recruit potential officers for the Women's Army Corps. One hundred college juniors representing 71 universities and colleges from 32 States attended the WAC College Junior Course on Army life following a campus campaign conducted under contract with *Mademoiselle* magazine from November 1964 to May 1965. Response was excellent and the campus program and its related summer course will be extended to the 1966 fiscal year.

The retention of junior reserve officers continues to be the most pressing officer problem. Although the projected retention rate for fiscal year 1965 is about 2 percent higher than last year it is about 10 percent below the required rate. This continuing shortfall in junior officers lowers the experience levels for the captain grade in the over-all officer structure and reduces the resources in that grade. Unless the trend can be reversed the implications for the future are serious. While the Army is exerting every effort to encourage junior reserve officers to pursue a military career, many of the reasons most frequently given by those leaving the service—inadequate pay and allowances, insufficient housing, lack of promotion opportunity, and overburdening duty requirements—are not susceptible of solution by the Army alone.

Parallel with the officer retention problem is that among enlisted men of junior grade and with few years of service. Three out of four first-term regular enlistees—those with less than 4 years of service—are choosing not to continue a military career. They represent the resource on which the career element of the enlisted structure is based, and are representative of the group from which the Army acquires the highly trained specialist who services and operates the complex equipment of the modern Army. The causes of low retention are generally the same as those affecting junior officers.

The Army's General Educational Development (GED) program has been directed toward raising the educational levels of military personnel so that they will develop the career potential to meet technical requirements in all branches of the Service. The program is conducted at 296 Army educational centers staffed by trained civilian educators. During the past year the average enrollment exceeded 143,500. Some 43,500 individuals completed the high school GED test,

recognized by the Army and most States as the equivalent of high school graduation, while over 70,500 completed off-duty college courses and 686 baccalaureate and advanced degrees were awarded. The average educational level of the military man is much higher today than it was a few years ago; in 1958, for example, only 55 percent of the Army's commissioned officers had completed college, while today 74.9 percent have baccalaureate degrees and 18 percent have graduate or professional degrees. A similar increase holds for enlisted men, 60 percent of whom had completed high school or its equivalent in 1958, while today 74.5 percent have achieved this level.

An important development occurred during the fiscal year when the Army on November 12, 1964, received the Emil Brown Fund Special Award in recognition of its program of preventive law. The award was presented to the Secretary of the Army by Professor Louis M. Brown, administrator of the Fund and son of the late Emil Brown, California industrialist, who established the Fund 15 years ago to encourage and to recognize noteworthy efforts in writing and research in preventive law. The award came as the result of a nationwide survey by the Fund's board of review, which is composed of prominent members of the legal profession.

Professor Brown cited the Army's preventive law program as an outstanding accomplishment in the field. In making the presentation he said: "The common denominator of your program is the affirmative and constructive use of your legal staff to improve and maintain a high morale of servicemen by reducing legal problems which might otherwise occur. We believe that the education of the soldier regarding the functions of the preventive law attorney will stand him in good stead for the rest of his life."

The concept of preventive law as defined by the Army program is that legal problems may be reduced greatly if Army personnel and their dependents are aware of the legal services available to them. The need for such services was recognized in the Army early in World War II, when the Legal Assistance Program was established and sponsored jointly by the military and the American Bar Association. The preventive law program is a continuing part of the Legal Assistance Program and was formalized in written regulations last year. The program provides for active publicity, training, and education to insure that Army personnel are aware of legal assistance services provided by the Judge Advocate General Corps. Designed to assist the soldier in meeting his legal obligations and to prevent the loss of man-hours by anticipating and solving civil legal problems, the program is also meant to improve the morale, efficiency, and prestige of the individual soldier. Although Army attorneys have furnished technical advice and guidance in the program, the support of unit and installa-

tion commanders has been cited as largely responsible for its success.

A substantial reduction in the number of trials by court-martial as compared with fiscal year 1963 was evident again in fiscal year 1965. As indicated in the report last year this decline in trials is attributable chiefly to legislation effective February 1, 1963, giving commanding officers increased powers to impose nonjudicial punishment. There has been a particularly sharp reduction in the number of cases tried by summary courts-martial since enactment of that legislation. Cases tried by summary court-martial in fiscal year 1963 totaled 32,316 as compared with 16,926 trials in fiscal year 1964 and 17,090 trials in fiscal year 1965. Cases tried by all types of courts-martial during fiscal year 1965 came to 43,456, representing a slight increase as compared with the 43,118 cases tried during fiscal year 1964 but a continuing substantial decrease from the 60,608 cases tried during fiscal year 1963. Army military personnel during the year ending November 30, 1964, committed 17,196 offenses that were subject to the jurisdiction of foreign courts, and in 13,776 instances—80.11 percent—waivers were obtained permitting appropriate disposition by military authorities.

The absent without leave (AWOL) rate for the year was higher than that for 1964, increasing from 48.9 to 52.9 per 1,000 strength.

Under the Army correction program, the prisoners-in-confinement rate was 4.6 for each 1,000 strength at the end of the fiscal year as opposed to 4.2 for 1964 and 4.9 for 1963. Recent changes in policies governing administrative discharges may have affected the rate, which in any event was abnormally low in 1964. Worldwide Army confinement facilities now consist of one disciplinary barracks and 47 stockades. The vocational training building at the U.S. Disciplinary Barracks, Fort Leavenworth, Kans., completed last year, is playing a major role in the prisoner rehabilitation program.

In the areas of criminal investigation and crime prevention, five TO&E military police groups have been established at CONUS Army level as the result of a study of the Army's system of counterintelligence, security, and investigative services. Group commanders have control over all assigned criminal investigators and provide essential direct investigative and crime prevention support to all Army installation and activity commanders within the respective CONUS Army geographical areas. The U.S. Army Military Police Criminal Investigation Repository was moved from Fort Gordon, Ga., to Fort Holabird, Md., where the counterintelligence records facility and other Federal investigative agency liaison units are located. At Holabird a master index covering counterintelligence and criminal records files has been established and is being effectively used by a number of Federal agencies.

Morale in the military Services rests heavily on pay and allowances and in this area there were three legislative actions in fiscal year 1965 that benefited military personnel. The first of these, embodied in the Military Pay Act of 1964, was a cost-of-living pay increase of 2.5 percent for all officers and for enlisted personnel with over 2 years' service, effective as of October 1, 1964. Secondly, an evacuation allowance was paid to dependents removed under emergency conditions from Cyprus, Panama, Vietnam, and the Dominican Republic. And thirdly, Vietnam was declared a combat zone for income tax exemption purposes, applicable to enlisted pay and the first \$200 of officers' monthly basic pay.

Since the pay increase of October 1964 did not bring military compensation into line with that in other segments of the economy, two major pay bills were introduced during the last half of the year providing for increases in basic pay of 10.7 and 5 percent, respectively.

Housing is a major consideration of military life and, as indicated earlier in this section, figures importantly as a career incentive. Ultimately the Army hopes to provide adequate permanent housing for all military personnel at permanent installations. The current deficit exceeds 150,000 enlisted and 13,000 officer spaces. Construction was begun during 1965 on 24,636 barracks and 1,740 bachelor officer quarters (BOQ) spaces. In the same period 4,125 barracks and 644 BOQ spaces were completed. A construction and modernization plan totaling \$120 million was initiated at West Point, N.Y., to meet the expansion of the U.S. Military Academy Cadet Corps from 2,529 to 4,417. This program will continue through fiscal year 1972.

In the field of family housing, 1,783 new units were authorized and funded in fiscal year 1965 while 1,970 units were completed from programs of prior years. Based on total requirements of 351,197 determined in a 1964 survey, a total of 255,939 families are adequately housed in military controlled housing, the civilian community, or are voluntarily separated. The remaining deficit consists of 58,293 inadequately housed families in areas where programing is permissible, and 36,965 families whose sponsors are assigned in locations where construction cannot be programed—9,800 of these unprogrammable families are estimated to occupy inadequate housing. DoD limitations on construction reduce the programmable deficit to 18,719 units. The proposed 5-year program will apply 11,290 units against this number. Included as assets are 4,722 authorized leases in and outside the United States for use as public quarters.

The spiritual needs of Army personnel were administered to by some 1,285 chaplains during 1965, approximately 73 percent Protestant, 24 percent Catholic, and 3 percent Jewish. In an attempt to alleviate a shortage of Catholic chaplains, the Chief of Chaplains appealed to the

church hierarchy in the United States and discussed the matter with Pope Paul during a visit to Rome in late 1964. Attendance at religious services was high during the past year, four permanent-type chapels were completed, and the Congress appropriated funds for the construction of eight more. Since 1954, 37 such chapels have been constructed at Army installations.

Commissary patronage and sales volume continued to increase in 1965, and congestion and workload indicates the need for additional store facilities and a larger work force. Sales are expected to increase by about 10 percent annually within the foreseeable future. Army and Air Force exchange systems in Europe were consolidated during the year, while plans for similar actions in the Pacific area were approved. Adult admission rates to Army and Air Force movie theaters were raised from 25 to 35 cents, with the additional earnings to be used to improve theater facilities.

The combat effectiveness of the Army depends in large measure on the health of the soldier. The noneffective rate—the average daily number of Army personnel excused from duty for medical causes—dropped to 9.4 per 1,000 in fiscal year 1965, the lowest rate in Army experience, while the admission rate to hospital quarters, 270 per 1,000 strength per year, marked the seventh consecutive year of decline. While there was great press and public interest in an outbreak of meningitis during this year, the number of cases was not large enough to affect significantly the favorable trends in Army health.

The meningitis outbreak hit most heavily at Ford Ord, Calif., among basic trainees, as is historically the case with this disease in Army populations. The basic trainee input at the installation was suspended from October 1964 to April 1965, and the reduction of susceptibles in turn reduced the incidence of the disease and resolved the immediate problem at this post. One of the chief problems lay in the fact that the responsible bacteria were highly resistant to sulfanomides normally used in the prevention of meningitis. A broad research effort is continuing, but the fiscal year closed with no significant advance in the capability for controlling the disease. Incidence at Army installations decreased during the last quarter of the year even though there was an increase among the general population of the United States.

There were several important developments in military medicine during the 1965 fiscal year. In June the Selective Service Administration issued induction calls for 2,181 physicians, of whom 772 were allocated to the Army. The projected 1966 draft of 950 physicians will produce 550 for the Army, 275 for the Navy, and 125 for the Air Force, all to meet the shortage of volunteers to serve as general duty medical officers.

Applications for the September 1965 class at the Walter Reed Army Institute of Nursing were accepted until May 15, 1965, and 135 candidates were selected, out of 886 applicants, on the basis of high school class standing, results of college entrance examinations, and medical fitness, among other factors. The Army health nursing programs at Fort Dix, N.J., and Fort Belvoir, Va., were selected to provide clinical public health nursing experience for all students in the Walter Reed program.

In January an Army senior veterinary student program was announced, with 63 applicants competing for the 20 authorized active duty spaces. Selections were made in April, and the participants will enter active duty as second lieutenants, MSC-USAR, at the start of the 1965 school year. They will constitute a source of officer personnel for the Veterinary Corps in fiscal year 1967.

The Army Dental Corps in 1965 joined the University of Missouri School of Dentistry in sponsoring a symposium on applied preventive dentistry at Walter Reed Army Medical Center, Washington, D.C. Its purpose was to encourage attention to preventive concepts and methods in dental education, to the end that future Army personnel will have received preventive care prior to reaching military age. Participants in the symposium, in addition to members of the cosponsoring organizations, included deans and other representatives of most of the dental schools in the United States, Canada, and Puerto Rico, and representatives of each of the Federal dental services and national dental organizations and societies.

The degree of Army attention to preventive dental care is reflected in the 675,000 cleanings and 527,000 fluoride applications administered in 1965, while 1,500,000 individual patients were counseled and attended lectures and motion pictures on oral health. In other preventive actions, water fluoridation at appropriate Army installations in the United States and Europe has been completed or is in process.

Medical care for dependents, an important morale factor to the serviceman and his family, was continued during 1965 within the limits of capabilities. A trend toward outpatient care and the prescription of medicines that cannot be procured from civilian sources at government expense hampered the program. A leading problem is the limitation on dental care for dependents.

Under health and safety programs, the Army's nuclear reactors were operated without a serious accident or incident in fiscal year 1965. Public interest in nuclear activities makes the safe operation of these facilities a sensitive matter. A comprehensive safety program bolstered by periodic inspection has been highly effective.

Civilian Personnel

At the close of the year there were about 453,400 Army civilian employees (including 5,200 Youth Opportunity Corps), 69 percent of them in the continental United States, the remaining 141,100, including 121,100 foreign nationals, serving around the world.

Fourteen Army activities employing 10,000 civilians were scheduled to be closed during fiscal 1965. Over 30,000 employees have now been involved in the closing, reduction, consolidation, and transfer of facilities and functions. Employee adjustments are being handled through a Defense-wide referral and placement system, and 15,298 had been placed or separated during the report period. Of this number, 12,061 were placed in DoD or other Federal positions 1,704 have retired or resigned, 470 accepted outside employment, and 1,063 were separated. The remaining 15,402 employees, all with job offers, will be transferred, placed, or voluntarily separated over the next 33 months. A retraining program has been established to provide continuing job opportunities.

Army commands in foreign areas continue to rely heavily on local national civilian employees in support functions. Wages, while they are abreast of those prevailing in the host country, are lower than those that would be paid if U.S. personnel were imported to fill the positions.

To further the President's program for increasing the effectiveness of government operations, several new requirements growing out of Bureau of the Budget actions and Defense Department instructions were imposed during the year. The Army was directed to maintain a prescribed average salary for employees under the Classification Act, and tightened control over positions at the GS-14 level and above. Army commands and activities were instructed to bring their GS-14 and above positions to specified levels by June 30, 1966, and to maintain average salaries at or below current levels. Adverse actions against employees to meet the new allowances were ruled out. Reduction is to be achieved through attrition.

A job evaluation study of the Project Manager offices in the Army Materiel Command was completed during the fiscal year. It resulted in the publication of a Job Evaluation Guide designed to insure that civilian positions in those organizations are classified accurately and in line with Civil Service standards while taking account of the unique and complex nature of the work.

A number of actions to improve training and development of civilian employees were taken during the last fiscal year. An integrated master plan for the development of executives and managers throughout the Department of the Army was published. A Civilian Training Center was established in the Washington metropolitan area to test and con-

duct training courses and hold conferences, seminars, and institutes for Army-wide participation. Planning for long-term developmental opportunities for civilian careerists was given attention, while plans were completed for the establishment of a central pool of spaces and funds to support long-term training and education of civilian employees.

Equal employment opportunity workshops were held centrally for major command employment policy and civilian personnel officers, and regionally for field personnel, to increase command participation and strengthen local programs. Training was also held in the conduct of labor negotiations through a series of seminars at various cities around the country.

In the labor area, the Army has approved 313 bargaining units, a 50 percent increase over last year. The Army has now approved 87 agreements with employee organizations.

President Johnson marked the 10th anniversary of the Government's Incentive Awards Program by presenting special awards to 30 employees, including 2 Army civilians, for their contributions to increased efficiency and economy in government.

Civilian personnel research in several areas was given attention when projects were contracted with New York University's Research Center for Industrial Behavior and the American Institute for Research in Pittsburgh, Pa., to study performance, personal characteristics, selection, and motivation.

The Department of Defense again designated the Army as coordinating agency for the tri-Service teacher recruitment program in the 1965-66 school year. Applicants were screened at 51 Service contact points and 18 oversea educators conducted interviews throughout the country. The DoD Dependents School Recruitment Center, operated by the Army in Washington, D.C., received 4,450 applications for rating and selection. Of the 1,700 requisitions from around the world, 1,500 were filled.

In the area of grievances and appeals to the Secretary of the Army, effort was directed to acting promptly on cases involving removal, suspension, and other adverse actions. The existing backlog of cases was reduced appreciably during the year.

Finally, under the authority contained in Executive Order 11171 of August 18, 1964, the Secretary of the Army reduced the tropical pay differential of U.S. citizen employees in the Canal Zone from 25 to 15 percent, and limited eligibility to "heads of household" instead of all U.S. citizen employees. The adjustment became effective in October 1964 and equates salary benefits in the Canal Zone with those of employees in comparable foreign areas.

V. Reserve Components

The reserve components reinforce the active Army in times of national emergency. Constant modification of their organization, manning, equipment, and training is necessary to keep these back-up forces in an effective state of readiness. During fiscal year 1965 a new combat readiness reporting system was introduced and a major realignment plan for the reserves was proposed.

Realignment of the Reserve Components

The Secretary of Defense on December 12, 1964, announced that he had requested the Army to prepare plans to realign the Army's Reserve and National Guard forces to improve their early deployment capability and combat readiness.

The realignment is designed to bring the Army's reserve component structure into balance with contingency war plans and the related equipment program. Under the basic concept of the reorganization, paid drill units of the Army Reserve, required under contingency plans, would be transferred into the Army National Guard, while units for which there is no military requirement would be eliminated. The Army Reserve would consist of individuals rather than units, and would provide fillers for summer camp and mobilization.

Management would be simplified, and it is estimated that about \$150 million per year would be saved under the plan. Paid drill strength would be 550,000 in about 6,000 company- and detachment-size units, all in the National Guard.

The Department of the Army plan provides for the reorganization to take place during the period July 1965-March 1966. Congressional hearings on the plan, conducted during the last half of fiscal year 1965, were continuing as the period closed.

The magnitude of this realignment and its import will be evident in a brief review of the troop structure called for under the plan.

The plan provides for *eight combat division forces* containing 223,300 paid drill spaces. The eight divisions would comprise five infantry, one mechanized, and two armored divisions. Each of these eight divisions would consist of a division base (headquarters and support elements) and three brigades. In most cases the base and one brigade would be located in the same State, with the other two

brigades located in one or more different States. This arrangement would spread the responsibility for providing the high priority combat troops, and would provide each State with major units to meet requirements for dealing with natural disasters or in preserving law and order. The divisional brigades would be formed from existing divisions and independent brigades.

There would be *16 independent (separate) brigades* with 69,600 paid drill spaces available for brigade-type missions or as reinforcements for Army or National Guard divisions, or as a nucleus for expansion to a division if required by mobilization. Each of the brigades has a base of armored cavalry, aviation, engineer, artillery, and service support units.

Another element of the realignment plan would be *units to reinforce the active Army*, absorbing 162,700 paid drill spaces and consisting of combat and service support elements capable of augmenting active Army divisions to sustain combat capability. In this category are engineer, artillery, supply and maintenance, communications, and other types of units.

Included in the plan's structure are *on-site air defense units* comprising 7,400 paid drill spaces and presently manning operational NIKE-HERCULES sites on a 24-hour basis as part of the existing air defense of the United States.

Within the category of *State headquarters and schools*, 9,500 paid drill spaces are included for State headquarters detachments and the staff and faculty detachments of the school systems.

Mobilization base units accounting for 66,300 paid drill spaces would come under the realignment plan, and would constitute a category including the 13 existing training divisions, each capable of operating a training center, and other elements needed for an orderly mobilization.

Finally, there would be *units to support other Services*, with a paid drill space allocation of 11,200, primarily engineer units to support Air Force construction requirements.

The proposed reorganization plan contemplates that the U.S. Army Reserve would continue and would consist of members of the Ready Reserve Mobilization Reinforcement Pool (RRMRP), the Standby Reserve, and the Retired Reserve. Members of the RRMRP would be called to active duty as reinforcements for Army National Guard units during annual field training and as combat replacements during wartime emergencies. Thus the Reserve realignment plan differentiates between the functions of the two components—the Army National Guard would provide trained units, the Army Reserve trained individuals.

Under the plan the 14 Army Corps headquarters and their subordinate elements, now a major part of the managerial structure of the Army Reserve, would be phased out by the end of June 1966. Some 3,000 assigned military personnel would be shifted to other high priority activities, while about 2,400 civilian personnel would be offered other job opportunities in Government. It is anticipated that \$25 million will be saved annually through the closing of the corps headquarters.

Future use of some 2,807 National Guard armories and 1,206 Army Reserve Centers would be determined after detailed State stationing plans have been developed and approved. Army Reserve facilities to be retained would be licensed to the several States for Army National Guard use. Surplus Government-owned Army Reserve Centers would be transferred to the General Services Administration for disposition. Leases of surplus Army Reserve Centers would be terminated and permitted or donated centers not utilized would revert to the owning agency. Surplus Army National Guard armories would be disposed of by the States.

In the personnel area, National Guardsmen in units being retained in the troop structure would continue as at present, while those in units being eliminated would be transferred to other units where feasible. Some who cannot be placed and who have a remaining obligation would be transferred to the USAR's RRM RP, where they would have the same opportunities for participating in activities as all nonunit members of the Ready Reserve. Others may transfer into the Standby or Retired Reserve or be discharged.

Army Reserve personnel who are members of units as well as those not presently assigned to units would have the option of joining but may not be involuntarily assigned to Guard units in their States. Personnel of the Ready, Standby, and Retired Reserve who do not wish to join the Guard would remain in their respective categories, while Reserve unit members not wishing to transfer to the Guard would be placed in the RRM RP or retired or discharged depending upon individual military obligation and desire.

In the Army National Guard, unit technicians are members of the unit employed as civilians in a full-time capacity to perform administrative or maintenance duties. Under the reorganization, the Guard's technician authorization would increase from about 22,300 to 27,220. Qualified and willing Reserve technicians would be accepted into Guard units as State employees to fill existing vacancies, while excess Reserve technicians would be afforded placement opportunities under the Army program for surplus employees.

Combat Readiness Reporting System

A combat readiness reporting system for the reserve components was established in fiscal 1965. Initial reports at the close of the first quarter, while indicating problems in reinforcement management and material readiness, also showed that the majority of reserve component units have achieved a high level of training readiness. Exceptions were primarily in units that have undergone recent reorganization or require special equipment to conduct effective training. A second report, submitted at the end of the third quarter, included an evaluation by each major commander and State adjutant general of command-wide problems causing deviations from readiness standards.

Throughout the year the Army continued to emphasize reserve component participation in active Army exercises, multiple training assemblies, and the airlift of units to training sites in different geographical areas for annual field training. During the active duty period, Army training tests were conducted for selected reserve component units.

Army National Guard

The 1965 budget projected an opening strength of 376,000 for the Guard and a closing level of 395,000. In fact, the opening figure was 381,546, and this dropped to 374,503 by the end of March 1965, a loss attributed to several factors including uncertainty in the minds of prospective enlistees over the announced reorganization plan and proposals to eliminate the draft. As the year closed the Guard's strength was 378,985 compared with a revised program of 385,000.

Under the Reserve Enlistment Program (REP) the Army National Guard programed active duty training input for fiscal year 1965 was 82,900. At the beginning of the year, due to record gains of REP recruits in 1964, 37,700 enlistees were awaiting orders to report for training. Additional training spaces were authorized by the Department of the Army to reduce the backlog. During 1965, 74,626 enlistees entered active duty for training, while at the close of the fiscal year 28,321 were awaiting spaces.

As a result of the proposed reorganization of the reserve components, planned construction of Army National Guard facilities was curtailed. Contracts were placed for only two facilities in the first half of the fiscal year. In mid-December, pending the development of stationing plans for reorganized units, major construction projects were suspended. In the last half of the year, three projects for improvement of training and administrative facilities at permanent training camps were approved and placed under contract.

The Army Guard's equipment status improved during 1965, with some obsolete items replaced by more modern equipment, including late models of the M-48 tank, M-84 mortar carriers, M-52 howitzers, M-113 personnel carriers, trucks, antitank guidance equipment, and M-60 machine guns. Adjustments in Army supply priorities brought a decrease in the aircraft, radio, and 2½-ton truck inventory.

The Army National Guard conducts training under criteria established by the Continental Army Command and the Army Air Defense Command. Army teams submitted Training Evaluation Reports on all Guard units. There was an increase in fiscal year 1965 in Guardsman participation in armory training, and some 311,322 attended annual field training. Selected units were given Army training tests as a measure of readiness, and the National Guard participated in large-scale field exercises and maneuvers with the active Army, airlifted over 10,000 men to summer training sites, and expanded the weekend training concept. About 900 Guardsmen from Minnesota, Washington, and Alaska trained in Exercise POLAR STRIKE in February 1965, while other units participated in ONEIDA BEAR II, NORTHERN HILLS, and LOGEX. Guardsmen also participated in courses at Army Service schools, Army Area schools, and Officer Candidate schools.

Enlisted evaluation tests to determine proficiency in the Military Occupation Specialty were administered to enlisted Guardsmen during the year. An average of 86 percent of those tested attained qualifying scores.

There was an upswing in the Army National Guard aviation program, with 213,000 programed flying hours. As the year closed, 1,885 aviators were on flying status, and the aircraft accident rate was reduced.

During fiscal year 1965 the program to man on-site NIKE-HERCULES batteries with Guard units was completed. At year end there were 48 NIKE-HERCULES batteries in CONUS and six in Hawaii, manned by 7,008 Guardsmen and operational around the clock and 7 days a week—part of the force protecting selected population and industrial centers against air attack.

Under a Department of the Army plan approved by the Secretary of Defense during 1965, civil defense planning headquarters were established, as noted previously in each State and in Puerto Rico under the adjutants general. Officers and enlisted technicians, paid from Federal funds, were being added to the State headquarters as civil defense planners.

On March 20, 1965, as reported in chapter II, elements of the Alabama National Guard were called into Federal service during civil rights demonstrations. All units were returned to State control on

March 28-29, except that authority was granted for certain rear detachments and individuals to be retained for up to 4 or 5 additional days.

The States depend on the National Guard for assistance in natural disasters and extreme civil emergencies when control and recovery are beyond the capabilities of other State and municipal agencies. The cost of these activities is borne entirely by the States, and may include sandbagging against flooding, hurricane assistance, snow emergencies, forest fires, search and rescue missions, emergency traffic control, and quelling prison riots. Noteworthy among the year's emergencies in which National Guard assistance was requested were Hurricane Hilda in Louisiana; floods in Iowa, California, Oregon, Wisconsin, Minnesota, Illinois, and Missouri; and tornadoes in Indiana, Wisconsin, Michigan, Ohio, and Tennessee.

Army Reserve

The 1965 budget projected a year-end paid drill strength of 285,000 for the Army Reserve. This was revised several times in budgetary actions, and the year-end figure leveled out at 270,000. Actual year-end strength was 261,680. REP-63 enlistments and training inputs for the year were 27,351 and 25,251 respectively.

Military occupational specialty tests to determine skill and proficiency were administered to enlisted Reservists during the year and 82 percent attained qualifying scores.

A special screening was conducted to identify members of the Ready Reserve who were employed in the executive, legislative, or judicial branches of the Federal government and whose order to active duty in time of emergency would impair the operation and continuity of Federal agencies. Ready Reservists occupying key positions and who did not possess a critical military skill were transferred to the Standby Reserve.

For Reservists transferred to the Standby Reserve on or before July 31, 1965, a new policy was established concerning eligibility to participate voluntarily in promotions and retirement point activities. Those transferred after that will be eligible to participate only if they have not fulfilled their statutory service obligation, or if they qualify for retention in an active Reserve status under the provisions of Section 1006, Title 10, U.S. Code—the saving provision applicable to Reservists with 18 to 20 years of qualifying service for retirement.

Army Reserve units use 1,206 federally constructed, leased, or donated facilities for home station training, administration, and maintenance. At the close of the year, 556 of these were federally constructed facilities and 18 percent were used by other Defense reserve elements.

Future facilities requirements will depend upon action connected with the proposed reorganization of the reserve components. While no new construction contracts for Reserve facilities were awarded, those already under way were continued.

In the materiel area, the accuracy and quality of reports of equipment assets held by Army Reserve units were further improved. The equipment status was improved by receipt of limited quantities of modern rifles, machineguns, tanks, personnel carriers, cargo trailers, and generators. High priority active Army equipment requirements resulted in a decrease in assets of 2½-ton trucks, radios, and aircraft.

U.S. Army Reserve units and individuals were trained during 1965 with all of the flexibility and resources inherent in the "One Army" concept. Several experimental programs were introduced, on a limited basis, that provided data for future programs. Among these were air mobility exercises and Army training tests at battalion level.

Present law permits paid drill units to participate in 48 paid drills annually and in 17 days of annual active duty training. The multiple training assembly, which permits a substantial increase in training time, and its expansion into the weekend multiple drill, which allows for participation in local field training, is being used increasingly.

Current policy requires that individual training, such as weapons qualification, be accomplished at the home station to the maximum extent possible, so that annual active duty can be devoted to unit training with at least four consecutive nights spent in bivouac under tactical conditions. Reserve units bettered this during calendar 1964 active duty training, averaging five consecutive nights in bivouac. Training inspections during that period revealed that commanders and staffs needed additional team training in tactical exercises, and therefore command post exercises were emphasized in 1965.

During the year the Army Reserve took part in three experimental unit training programs. The first was Operation STEPLADDER, a test of the concept of merging two understrength battalions to form a single organization for field training. This was tested in the 90th and 81st Infantry Divisions at Fort Hood, Tex., and Fort Stewart, Ga., respectively, and led to a policy that, within CONARC, Army commanders may authorize such exercises for units capable of advancing beyond company-level training.

A second experimental unit training program was the application of battalion-level Army Training Tests (ATT) to reserve component units during active duty training. Selected units were tested on active Army standards, and valuable information was acquired on methods, scheduling, filler-allocation, and training. Many USAR units were scheduled to practice battalion-level ATTs in their unit training

schedules and to perform tests of their own in the last half of calendar year 1965.

Air mobility was the third experimental training area. In line with the Army's emphasis on global mobility, the reserve components conducted air mobility training in conjunction with travel to training sites during calendar 1964. USAR's part of this operation was SKY-THRUST, to provide units with experience in planning and executing unit movements by air. Five battalions and seven companies, a total of 2,200 troops, were airlifted to summer training sites in planes of the Air National Guard, the Air Force Reserve, and charter lines. Two-way coordination between the ground and air transport units was useful. This training will be repeated for some 6,400 Reservists in fiscal year 1966.

Individual training for Army Reservists brought into play the full range of active Army and Reserve capabilities. In addition to active duty at Army schools and colleges, training centers, in national seminars, and in mobilization designation tours, considerable training in a nonpay status was performed. For example, more than 19,000 Reservists were enrolled in USAR schools that support individual training at 299 locations in the CONUS, Hawaii, Puerto Rico, France, Germany, Spain, Italy, and in the Philippines. Courses were offered in 19 branch departments, including Command and General Staff, and in 30 military occupational specialties, including a noncommissioned officer academy.

Thirty-two active Army service schools and colleges were used by Reservists for both resident and extension courses. Senior Reserve officers kept abreast of national policy and strategy through attendance at the Defense strategy seminar at the National War College; at national security seminars throughout the United States, operated by the Industrial College of the Armed Forces; at reserve component officer orientation courses of the Army War College; and in the Communist strategy seminar at the Foreign Service Institute. For personnel unable to participate in a troop program unit because of nonavailability of units or spaces, the Army Reserve provided 407 reinforcement training units for 8,184 Reservists who received training on a nonpay status.

Marksmanship was emphasized in a competitive program throughout the year, encouraging Reservists to develop proficiency in the use of small arms on their own initiative. Army Reserve teams and individuals tallied more points at the National Matches in 1964 than any other reserve component of any Service.

Under the new readiness reporting system, the areas of major deficiency were logistics and personnel strength. Noteworthy was the ability of units at summer camp to perform rather than merely prac-

tice their missions. Many support-type units actually supported other Reserve and active Army units during their summer training. Every USAR training division trained recruits for the active Army, taking over in part the missions of the Army Training Centers.

Status of ROTC/NDCC

Currently there are 232 Reserve Officer Training Corps (ROTC) units at 247 colleges in the Senior Division with an enrollment of 157,303 students, 40 units at 40 institutions in the Military School Division with an enrollment of 16,775 students, and 88 units at 253 secondary schools in the Junior Division with an enrollment of 57,274. Total enrollment in the Army ROTC program at the beginning of the 1964-65 school year was 231,352 students. In addition, the National Defense Cadet Corps (NDCC) program included 80 units at 126 schools with an enrollment of 28,512 students.

The first major changes in the ROTC since the establishment of the program in 1916 were authorized by the ROTC Vitalization Act of 1964 (Public Law 88-647). Under the legislation, signed by the President on October 13, 1964, advanced course students are enlisted in the



Figure 6. Cadets receive assistance from an instructor during a field training exercise at ROTC summer camp.

U.S. Army Reserve; pay for advanced course students was increased from \$27 to \$40 per month; summer camp travel allowances were increased from 5 cents to 6 cents per mile; pay for attendance at summer camp was increased from \$78 to \$120.60 per month; and the \$300 uniform allowance previously limited to graduates commissioned as USAR officers was extended to those commissioned in the Regular Army. Under other provisions, an expansion of Junior ROTC to 1,200 schools on a tri-Service basis is under study, and a 6-week basic summer camp was conducted at Fort Knox, Ky. The purpose of the camp was to qualify students for enrollment in the advanced course in lieu of completion of the basic course offered on campus. It was attended by approximately 623 students. Finally, the bill authorizes each of the Services to have 5,500 scholarship cadets in the program at any one time, but limits the Army and the Air Force to 4,000 until the 1968-69 school year. For the 1965-66 school year, DoD authorized the Army and Air Force to offer 1,000 scholarships each. Scholarships will provide funds for tuition, fees, books, and laboratory expenses and \$50 per month for cadets through the completion of prescribed courses of instruction. Recipients will be required to serve a minimum of 4 years on active duty. For the 1965-66 school year the Army has awarded 400 4-year scholarships to high school graduates and 600 2-year scholarships to ROTC cadets who have completed the first 2 years of ROTC and have been selected for the advanced course.

The Secretary of the Army in March 1964 directed that the ROTC curriculum be studied to insure that it was responsive to the requirements of a modern education, would provide eligibility for academic credit, and was capable of producing a well-educated officer who would meet the immediate needs of the Army. Separate inquiries were undertaken by a joint military-academic committee under Ohio State University direction, by faculty representatives of the U.S. Military Academy, by an ad hoc committee of professors of military science, and by Headquarters, CONARC. After the studies have been analyzed and refined, a recommended curriculum will be submitted for approval.

VI. Management, Budget, and Funds

Management

Management of the Army's resources is a complex and constantly changing effort. The goal is to provide the most effective land forces at the least possible cost. The techniques change as the science of management progresses and the physical means improve for communicating decisions and storing and evaluating data on which they must be based. The direction taken, in fiscal year 1965, in the Army's constant search for better management techniques was toward increased use of the tools of scientific management to improve the use of Army resources—money, personnel, materiel, and installations. Much of the effort this year has been devoted to improving cost analysis and accounting, that is, toward identifying the various elements of cost of weapon systems or activities, so as to provide the Army's top managers, those in the Office of the Secretary of Defense, and the Congress, with more precise and comparative data on which decisions can be based. Closely related facets include better budgetary methods and control, increased use of work measurement, centralization of control over suitable areas of Army-wide activities, and organizational improvements. The Army effort is part of a Defense-wide program. No small part of it is devoted to meeting and exceeding the goals established for the Army in the Defense Cost Reduction Program.

During the year, the Army's top management placed its primary emphasis on combat readiness of units, personnel and materiel and the problems connected therewith. These matters were stressed in all review and analysis media. Quarterly composite reviews of the Army's functional programs, mission-oriented analysis of four major Army field commands, and biweekly revisions of the quick-reference Army Status Report provided the Chief of Staff and the Secretary of the Army with comprehensive information needed for decision making.

Fiscal year 1965 marked the second year of Army participation in the Department of Defense Project for the Development of Improved Management Engineering Systems (Project DIMES). This project has as its objective substantial adoption of accepted industrial management techniques at all suitable defense activities over a 5-year period. It is anticipated this will lead to increased productivity, improved use of facilities, manpower, materials and equipment, lower

operating costs, and a firmer basis for planning and budgeting. Certain suitable categories of activities have been selected, and pilot installations chosen in each category. The 12 Army installations selected to serve in this capacity are three arsenals, three depots, two proving grounds, two national inventory control points, one repair and utilities activity (post engineer), and one research and development laboratory.

The phasing of the project provides for orderly attainment of its basic objectives at each installation. Phase I, lasting 12 months, is devoted to developing improvements in work methods and to defining performance standards for 65 percent of the potential personnel; Phase II, also of 12 months' duration, to devising a system for planning production and assigning manpower. During the third phase, lasting 6 months, a correlated cost accounting system will be developed.

During April and May 1965, a Department of the Army Review Group evaluated the accomplishments in Phase I of the pilot program at arsenals in Watervliet, N.Y., and Rock Island, Ill. The group found that the project was achieving its purposes, that the ratio of proven savings to costs of the test was 8.4 to 1 at Watervliet and 6.3 to 1 at Rock Island. The group reported that this success eminently justified not only continuation of the DIMES Program at these installations, but also its extension to similar industrial-type activities within the Army Materiel Command (AMC).

The effort begun last year to extend the use of work measurement techniques to increase efficiency and thus reduce operating costs is progressing satisfactorily. Pilot tests have been started both in the United States and overseas in activities such as laundries, commissaries, and finance and accounting offices, and these will be completed late in calendar year 1965. The purpose of these pilot tests is to establish integrated work measurement procedures which then can be considered for extension to all installations to which they are applicable.

To improve costing capability, the Comptroller of the Army has established a Cost Analysis Directorate, charged with planning for the establishment of and exercising staff supervision over a uniform system of costing activities to be applied throughout the Army. One of the facets of this system will be the Cost and Economic Information System prescribed by the Secretary of Defense and designed to standardize the collection and use of actual cost data for selected weapon systems and major items of equipment in all three military departments.

Along similar lines, in compliance with a Department of Defense directive, an integrated management structure for Depot Materiel Maintenance and Support Activities was designed and published during the past fiscal year. This structure will be used in budgeting and management as well as cost accounting. The directive prescribes uni-

form costing procedures to be used in depot maintenance activities of all three Services all over the world to determine total depot maintenance cost for the completed end product. Costs will then be related to weapon support systems or to commodity groups by type, model, or series, in order to provide comparability data between depots and between military and private industrial activities of the same type. The system provides means of measuring productivity, developing cost and performance standards, and for other data that will assist in determining where management improvements are required.

A system for accounting and reporting on operations and maintenance of Army aircraft has also been developed and published, which will provide management with comparable flying hour costs of operating and maintaining aircraft by specific category, type, and model as a basis for determining the most economical flying hour program. Geographical and environmental conditions will also be considered in establishing ratios of operations and maintenance costs to flying hours. The hoped-for result will be to enable the Army aviation program manager to identify and correct more readily abnormal variations in cost, and to enable the Army's budgeting and programming agencies to be more responsive to the Office of the Secretary of Defense (OSD) in providing information on Army aviation costs.

Accounting systems for two major appropriations categories, Procurement of Equipment and Missiles, Army (PEMA), and Research, Development, Testing and Evaluation (RDT&E), are being improved. A single accounting and reporting system for the PEMA appropriation is being designed to serve the needs of program, procurement, and financial management at all levels of operations. The new system will provide a more effective means of translating materiel requirements generated by military plans into specific listings of required items. It will be more flexible and responsive to management information requirements at all levels, and it will eliminate any duplication in the existing independent systems for management of the PEMA appropriation.

The new accounting system for the RDT&E appropriation, to be placed in effect in fiscal year 1966, provides a uniform system of accounting for installations and activities funded under the appropriation (not those industrially funded) in accord with the Army program year concept. It will support the Army Research and Development Information System (ARDIS). The basic principle is a job order cost accounting procedure for applying costs to specific RDT&E projects, tasks, or customer orders.

In the continuing effort to reduce the reporting load, the Comptroller of the Army undertook studies of Army reports in two functional areas—operation and maintenance of facilities and civilian

personnel—and of all reports required of the Army by the OSD. Out of these studies came recommendations for the outright rescission of 30 reports, the consolidation and combination or simplification of 38 others, and the reduction of content and frequency of 14. The recommendations concerning reports required by the OSD must, of course, be reviewed jointly with representatives of that office before any action is taken.

Improvements in organization constitute one of the more important avenues of approach to better management. Several important steps were taken in this field in fiscal year 1965. Army regulations and directives were revised to more clearly delineate the responsibilities of the Deputy Chief of Staff for Logistics (DCSLOG) and the Army Materiel Command in maintenance activities and related supply areas. The status of the U.S. Army Maintenance Board as an operating agency under the Materiel Command was confirmed, while DCSLOG was given a manpower augmentation to enable it better to perform its mission of establishing policy and maintaining overall supervision.

U.S. Army counterintelligence operations were brought on January 1, 1965, under control of a single command, the U.S. Army Intelligence Command at Fort Holabird, Md., where all counterintelligence dossiers are maintained. Formerly, each of the six numbered armies in the continental United States and the Military District of Washington was responsible for these activities within its geographic area. Under the Intelligence Command there are seven subdivisions corresponding to the numbered Army areas and the Military District of Washington, with field offices at posts and in major cities, but all activities are under a central control. While it is too early to assess the results, it is believed that the new system will increase flexibility in disposition of resources, lead to standardization of procedures, and promote general efficiency in the counterintelligence effort.

A third organizational improvement recently approved is in management of research and development laboratories within the Army Materiel Command. The position of Director of Laboratories will be established in AMC to be filled by a highly qualified senior civilian scientist, who will be de facto Deputy to the Commanding General with responsibility for the technical quality of the research and development program performed within AMC (though not for contract projects). The Director of Laboratories will have direct and complete line authority over the group of central laboratories that presently report directly to AMC Headquarters, and staff responsibility for effective conduct of the work done in the laboratories of the commodity commands under AMC. He will be authorized to represent the Commanding General, AMC, in direct communications with Headquarters,

Department of the Army, on all matters relating to the programs actually conducted within AMC laboratories.

On the Defense level, the Army is involved in the transfer of contract administration functions from individual purchasing offices to a consolidated organization under the Defense Supply Agency (DSA). This involves not only a transfer of functions but also the transfer of personnel, space, and equipment resources to staff and man the proposed Defense Contract Administration Services regions which are being activated under the program. In Pennsylvania, the Philadelphia Region, where the original test was conducted, was assigned to DSA on September 1, 1964. In Michigan, the Detroit Region, the first to be established since approval of the national plan, became the second operational region under DSA in April 1965. In Texas, the Dallas Region became operational in June, and in Massachusetts the Boston Region will become operational in August. In the coming months the conversion task forces, in which Army personnel are participating, will be engaged in working out problem areas based on experiences at Detroit, assisting the remaining regions in accomplishing necessary preconversion actions, and, in general, trying to assure a smooth transition.

The Defense Contract Administration Services regions will not carry out the complete procurement function, that is, they will not negotiate contracts, but will administer them for all Departments and DSA after they have been awarded. The consolidated agency will establish uniform procedures for contract administration, and reduce the number of Defense activities dealing with contractors in such common functions as security, terminations, quality control, and property administration. The objective is to eliminate duplication of effort, reduce costs, and make it easier for private firms to do business with the Government.

In this particular area, as an aid to small business, Army agencies awarded \$1.3 billion in prime contracts to small concerns during the fiscal year. This constituted 25.3 percent of the \$5.3 billion total of all business awards.

Regular audits are one of the most important features of financial management within the Army. This fiscal year the Department is in sight of its goal of a comprehensive audit of all installations every 18 months. This objective has never been reached in the past, primarily because of lack of adequate funds and manpower, and because of a steadily rising volume of requests for unprogramed audit services. This year the Secretary of Defense allotted a 15 percent increase in funds and personnel to the U.S. Army Audit Agency and almost all these additional resources will be applied to internal audits. Plans pro-

vide for increased frequency of military installation audits in fiscal year 1966.

On December 12, 1964, the Secretary of Defense announced that contract audit functions would be transferred from the individual military departments to the Defense Contract Audit Agency as a part of the general consolidation of defense contract administration services. It is expected that this decision will require transfer of approximately 900 Army personnel spaces to the new agency over the next fiscal year. Plans have been readied for a major reorganization of the U.S. Army Audit Agency, both at headquarters and in the field, to provide for necessary adjustments following the establishment of the Defense Contract Audit Agency.

During the year, the Technical Training Branch of Headquarters, U.S. Army Audit Agency, received special recognition in the form of a Presidential Citation for the excellence of its work in administering and directing a technical training program for both Army auditors and those of friendly governments (e.g., Republic of China, Korea, Iran). The work of this unit was judged to be an outstanding contribution to greater overall economy and efficiency in government operations.

Cost Reduction Program

The results of improved management within the Army, continuing over the past few years, show up in the success with which the Army has met its goals under the Defense Cost Reduction Program. In fiscal year 1963, the first year of the formal program, the Army achieved savings of over \$678 million, exceeding its \$459 million goal by 50 percent; in fiscal year 1964, though the goal was doubled to \$818 million, the Department exceeded its target by 23 percent; in the past fiscal year the Army reported savings of \$1,173.8 million against a revised goal of \$934 million, again exceeding the annual savings target, this time by 26 percent.

The 1965 goal was based on expected cost-cutting contributions at every level of command, with the contributions depending on the initiative and ingenuity of all Army personnel, individually and in groups. To foster these efforts at every level, the Army launched a five-pronged "Drive to Reduce Costs in '65" throughout its worldwide establishment, with these objectives:

Documentation to be improved to establish a sound basis for maximum validation of savings.

Refinement of reporting system so as to minimize the number of valid cost reductions that do not get reported.

Increase significantly the participation of grassroots personnel.

Vigorous exploitation of new cost reduction ideas.

Educate cost reduction and budget specialists on correlative responsibilities.

Visits by an Army Cost Reduction Field Orientation Team, film strips, "speechmaker" kits, awards and incentives, and cost reduction seminars were used, among other measures, to disseminate information on the importance of the cost reduction effort in the field. Army commanders took steps to insure awareness and participation at the "grass roots" within their commands. Improved guidance on documentation was prepared and disseminated by Department of the Army and a new feedback system installed which enables field commands to know promptly the results of Department of the Army and Office, Secretary of Defense, reviews of their cost reduction reports.

The result was a series of actions at all levels in the Army, ranging from some that realized only a few dollars to others producing many millions of savings. A few examples illustrate this:

A sergeant first class at Fork Knox, Ky., suggested the use of modified football helmets to replace the standard tanker's helmet in tank training. The tanker's helmet cost \$80.95 each. Procurement and modification of football helmets costing \$9.60 each resulted in savings of more than \$123 thousand.

A Korean national employee suggested a method for improving facilities used in cleaning empty railroad tankcars in South Korea. His idea saved \$8,000 of Army funds.

In Europe, the 521st Engineer Group, Seventh Army, fabricated a load center apparatus which provides current to HAWK missile launchers. The improvement enables two generators to furnish the same electrical power previously furnished by four. These load centers have been installed in all HAWK sites throughout Seventh Army with net savings of \$547 thousand.

An employee of the U.S. Army Missile Command, Huntsville, Ala., developed a procedure to expedite the return of unserviceable NIKE-HERCULES solenoid valves to repair facilities and through an accelerated repair program was able to reduce the repair cycle from 6 to 3 months. The increase in availability of solenoid valves made it possible to reduce procurement requirements, with a consequent savings of \$395 thousand.

An employee of the U.S. Army Ammunition Procurement and Supply Agency, Joliet, Ill., in reviewing a list of ammunition items scheduled for demilitarization, noted that large quantities of the excess rounds used the M-108 cartridge case. The employee suggested that the cartridge cases be reworked and used in lieu of new procurement of M-108B1 cases needed for the new 90-mm. TP-T, M-353 cartridge. His idea was accepted, and the Army was

able to reprogram \$3 million to meet other procurement requirements.

Actions such as these show how the Army, through the medium of the Cost Reduction Program, is constantly seeking new opportunities to buy increased strength and effectiveness at the least possible cost to the taxpayer. None of these savings are at the expense of the Army's main goal—readiness of forces for any emergency.

Budget and Funds

Nine months before the beginning of the fiscal year, the Army submitted to the Office of the Secretary of Defense a budget estimate of \$13.7 billion in new obligational authority (NOA) for fiscal year 1965. Following review by OSD and the Bureau of the Budget, this figure was reduced to \$12 billion in the President's budget for fiscal year 1965, and to \$11.7 billion by the Congress.

The development of the fiscal year 1965 budget is summarized by appropriation in the table on page 174.

The next table shows total funds obligated by the Army for fiscal years 1964, 1965, and 1966. The total obligations cannot, however, be compared directly against new obligational authority granted by the Congress for each year. In the so-called "no-year" appropriations, PEMA, RDT&E, and Military Construction, obligation authority can be carried over from one year to the next. Moreover, the Army acquires some additional obligational authority each year from reimbursable sales to customers as, for example, the Military Assistance Program.

During the past fiscal year, the Army moved forward in the use of sophisticated automatic data processing equipment in financial operations. A number of milestones were passed in the development of an automated budget system. The concept has been agreed upon, the requirements established, and a series of applications put into operation. These applications, which include exchange of budgetary information between the Army Headquarters and the Army commands, provide for automated operating budgets, budget markups, and annual funding plans. Budgetary data are processed on a computer to develop budget analysis schedules and historical budgetary files. Other automated data processing applications, to include contractor developed systems on a phased basis, are planned for 1966.

In the area of military pay, the testing of a centralized automated system for the Army was approved in July 1964. Under this proposed system, a single large-scale computer complex at the Army's Finance Center will compute all military pay, and electrical data transmission facilities will be used to the maximum in transmitting pay data between field installations and the central complex. The development and

DEPARTMENT OF THE ARMY

CHRONOLOGICAL SUMMARY OF THE BUDGET ESTIMATE, FISCAL YEAR 1965

(In Thousands of Dollars)

Appropriation	Department of Army submission	President's budget	Appropriated P.L. 88-446 (8/19/64) P.L. 88-576 (9/2/64)	New obligational authority	
				Supplemental appropriation P.L. 89-16 (4/30/65)	Total
Military Personnel, Army-----	4,321,758	a 4,231,000	b 4,221,000	-----	b 4,221,000
Reserve Personnel, Army-----	255,740	242,900	242,900	-----	242,900
National Guard Personnel, Army-----	286,048	274,500	277,500	-----	277,500
Operation and Maintenance, Army-----	3,725,744	3,463,000	3,439,000	43,910	c 3,482,910
Operation and Maintenance, ARNG-----	216,816	188,000	188,000	3,424	191,424
National Board for Promotion of Rifle Practice-----	484	484	484	-----	484
Procurement of Equipment and Missiles, Army-----	2,662,294	1,779,000	1,656,396	-----	c 1,656,396
Research, Development, Test, and Evaluation, Army-----	1,648,042	1,397,000	1,340,045	-----	1,340,045
Total, excluding Construction-----	13,116,926	11,575,884	11,365,325	47,334	11,412,659
Military Construction, Army-----	549,333	408,000	300,393	-----	c 300,393
Military Construction, AR-----	9,300	5,000	5,000	-----	5,000
Military Construction, ARNG-----	10,000	6,000	10,800	-----	10,800
Total Construction-----	568,633	419,000	316,193	-----	316,193
Total Military Functions-----	13,685,559	11,994,884	11,681,518	47,334	c 11,728,852

a In addition, \$75 million transferred from Defense and Army Stock Fund.

b In addition, a supplemental appropriation approved (P.L. 89-18 (5/7/65)), Emergency Fund, Southeast Asia, of which \$218 million is for transfer to Army, broken down as follows: O&M, A, \$46.6, PEMMA, \$126.6, MCA, \$44.8.

OBLIGATIONS

(In Millions of Dollars)

	Fiscal year 1964	Fiscal year 1965	Fiscal year 1966 ^a
MPA.....	4, 329. 6	4, 348. 4	4, 395. 2
RPA.....	207. 2	212. 9	238. 9
NGPA.....	247. 5	269. 3	273. 0
O&M, A.....	4, 154. 8	4, 258. 3	4, 935. 7
O&M, ANG.....	181. 0	192. 5	210. 8
NB for the Promotion of Rifle Practice, A.....	. 5	. 5	. 5
PEMA.....	2, 836. 7	2, 641. 0	5, 051. 0
RDT&E.....	1, 389. 4	1, 479. 1	1, 567. 7
MCA.....	617. 0	592. 0	597. 0
MCAR.....	6. 3	2. 6	0
MCANG.....	13. 4	2. 1	12. 0
Total.....	13, 983. 4	13, 998. 7	17, 281. 1

^a Tentative.

test of the proposed system are closely coordinated with the Army's effort toward the control and automation of pay-related data as close to the source as possible. The whole system is designed, through the use of the automatic data processing equipment currently available, to assure an accuracy and efficiency in military pay operations hitherto impossible, and to enhance the timeliness and completeness of budgetary information.

In December 1964, the Secretary of Defense assigned to the Army the task of initiating the development and testing of a centralized military pay system to cover all four military Services. During a short joint developmental effort, approximately 250 Service differences in pay administration were identified, and the OSD determined that they were of sufficient magnitude to require resolution at that level. As a result, the Army is continuing a Defense-sponsored test of centralized pay administration but using only Army accounts. At the end of the fiscal year, four garrisons and one infantry division in the continental United States were actively involved. Test plans call for an extension to a selected variety of organizations, both in the United States and overseas, to insure a representative test environment.

The Army continued during the year its efforts to reduce oversea expenditures, as part of the over-all administration program to eliminate or reduce the U.S. balance of payments deficit. Expenditure and receipt targets were assigned to all Army commands and staff agencies having transactions affecting this area. The two series of actions directed by the Secretary of Defense designed to streamline support

activities abroad were completed, except for the reductions directed in oversea contractual services and construction. And wherever practicable, construction projects were diverted from foreign to American firms and materials and supplies procured from American rather than foreign sources.

Army military and civilian personnel assigned overseas were urged to channel their personal spending and savings into American enterprises wherever possible and to curtail local expenditures. Oversea commands pursued vigorous programs aimed at increasing patronage of Army exchanges, clubs, and other nonappropriated fund activities, and sought to encourage increased savings bond purchases, soldier's deposits, and savings in American institutions.

The strenuous efforts to promote additional sales of American weapons and materials to allied nations and to expand the use of facilities through cooperative logistic arrangements met with increasing success (see chapter XI).

Army Information and Data Systems

Automatic data processing in all areas has assumed an increasingly important place in Army operations in recent years and requires a sizable investment of Army resources each year. As shown in the accompanying table, this investment in fiscal year 1965 was approximately \$190 million and involved 17,500 man years of work. Many Army activities are largely dependent upon automatic data processing for the performance of their missions.

ARMY USE OF AUTOMATIC DATA PROCESSING EQUIPMENT, FISCAL YEARS 1964-66

(Summary of Army Report to Bureau of the Budget)

	Actual, fiscal year 1964	Actual, fiscal year 1965	Projected, fiscal year 1966
ADP Units with Computers:			
Number of Units.....	178	199	204
Number of Computers.....	358	415	458
Total Costs (millions).....	^a \$166. 2	^a \$150. 9	^a \$150. 7
ADP Units without Computers:			
Number of Units.....	288	328	265
Total Costs (millions).....	\$311	\$271	\$229
Total Man Years ^b	15, 771	17, 499	17, 525
Total Costs (millions) ^b	\$203. 7	\$187. 3	\$183. 3

^a The total cost figures reflect impact of large purchase action during fiscal year 1964 and resultant savings in fiscal year 1965 and fiscal year 1966.

^b Includes non-ADP unit contractual services and ADP management staffs.



Figure 7. Computers are essential to the management and readiness of the large and complex organization that is the modern Army.

In recognition of the importance of this function, on November 8, 1963, the Office of the Special Assistant to the Chief of Staff for Army Information and Data Systems (AIDS) was established with responsibility for advising the Chief of Staff in this area and coordinating over-all development of all information and data systems within the Army. This includes development of plans and policies, a function formerly exercised by the Army Comptroller.

AIDS' first task was to establish appropriately centralized control. In May 1964, revised procedures were instituted for installing new ADP systems and acquiring ADP equipment that essentially provide for central review and coordination of basic plans before sizable resources are committed to developing any new system, central selection on a competitive basis of the most suitable equipment for each system, and central approval of acquisition of ADP equipment.

During the past fiscal year these procedures have been in effect with several beneficial results. Centralized control facilitates the standardization of systems and equipment, that is, it helps to establish one common system which can be used by several organizations which have similar requirements. It also enables maximum advantage to be

reaped from systems development work done anywhere in the Army establishment. Work done in one command can be quickly made available to another, precluding, so to speak, repeated "re-invention of the wheel." Central control also assures selection of the equipment best suited to the needs of any individual system proposed and the widest possible competition among vendors in the procurement of this equipment. It prevents designers from shaping their systems to the capabilities of the equipment rather than the needs of the user. Moreover, central control assures that effective use will be made of ADP equipment already available within the Army before any steps are taken to acquire additional machines.

The AIDS program has thus led to significant savings in both manpower and money, as well as to a reduction in the leadtime between the determination of systems requirements and the installation of new systems.

Army Study System

A similar effort has met with success in the establishment of better coordination of the various study efforts conducted at all levels within the Army. The Office of the Director of Special Studies was established in the Office of the Chief of Staff in April 1963. In 1964 the Director of Special Studies conducted an analysis of the existing Army Study System and found that many studies were being prepared independently by various agencies, and that there was insufficient coordination and correlation of over-all study activities. The report stressed the need for improvement along two lines. First, there was a need for higher quality work—more professionalism and objective analysis. Second, there should be wider use of study material and more efficient means of identifying subject matter and retrieving information. To accomplish these aims, the report recommended certain major improvements which could be made within the existing organizational structure, while still preserving decentralization of authority, responsibility, and action. Four major improvements have been instituted during the past fiscal year as a result of this analysis.

First, an Army Study Advisory Committee was established as a principal advisory group to the Chief of Staff on study matters. This committee is chaired by the Director of Special Studies and includes representatives from the general staff agencies and certain of the major commands. Study coordinators at Army staff agency and major command level complement the committee's work and extend its operations. These study coordinators act as principal points of contact on study matters and facilitate the exchange of information on past, current, and projected studies conducted by various agencies.

Second, an Army Study Documentation and Information Retrieval System (ASDIRS) was set up in the Army Library. This facility, using automatic data processing, permits rapid retrieval of information on past and current studies and provides access to completed studies. Using it, the staff can rapidly determine what has been done (or is being done) in any particular field. This has great practical value in preventing duplication as well as in providing quickly available references on any given topic.

Third, a common, realistic background against which a greater number of studies can be developed and evaluated is being designed. Several staff actions are under way to accomplish this. Broad intelligence projections are being made, in study context, so that forces and systems can be developed against a logical and realistic spectrum of conflict. These projections are examining future trends. A rationale has been developed for correlation and direction of study effort so that the results will be more valid and credible.

Finally, the 1965 Army Master Study Program has been developed and published. This document is a formal approved listing of studies that will have major impact on overall planning, programing and budgeting. The information in it is useful to OSD, other Services, Defense agencies, and other Government agencies, as well as within the Army. It orients the Army's study efforts toward the unifying concepts, missions, and guidance established by the Chief of Staff. It provides a mechanism by which the Army Staff can detect gaps in the study effort or unbalanced emphasis upon certain areas. When these imbalances appear, the staff can quickly rectify them by directing new studies or redirecting current ones to provide a well balanced program leading toward the orderly development of the well balanced multipurpose Army of the future.

VII. Logistics

Materiel Readiness

In the logistics area, materiel readiness, as an element of operational readiness, received more attention in fiscal year 1965 than ever before. There were several reasons. First, the Army must today maintain some of its forces in a state of almost instant readiness; major elements, including high priority reserves, must be prepared to engage in combat in a matter of days or weeks. The equipment in a military man's hands today is the same equipment with which he must fight tomorrow. Time is not likely to permit the series of shakedowns and false starts that characterized the preparations during World War II and Korea. Proper quantities and types of equipment must be in the hands of units in peacetime, and this equipment must meet high standards of combat serviceability. And the problem becomes more difficult as equipment in the modern Army becomes more complex. Maintenance of a World War II tank was simple compared to maintenance of modern Army missiles and electronic gear. The skills, time, and number and complexity of repair parts required have increased dramatically.

In this situation, a growing number of materiel readiness problems have been beyond the capabilities of field commanders to resolve, and have required attention at Headquarters, Department of the Army, and OSD level. Senior managers at these levels have continued to require more and more precise data from the field as a basis for evaluating the current materiel readiness position of Army units and for determining effective Army-wide policies and procedures for improving it.

During the year, a special Department of the Army Board of Inquiry on Materiel Readiness conducted an intensive investigation in the entire field and identified the major problems involved. The board report became the springboard for action directed at improvements in more than a hundred different areas such as maintenance of equipment at unit level; unit, station, and wholesale supply practices; and assignment, training, and utilization of maintenance personnel.

As part of the general improvement program, Department of the Army teams made "on-the-spot" liaison visits to major field commands such as Second Army (Fort Meade, Md.), U.S. Army Pacific, and

U.S. Army Europe to gain information on their materiel readiness and to assist in solving problems relating to it. The teams assisted in identifying assets, expedited the filling of shortages, identified areas in which departmental guidance could be improved, and studied and recommended improvements in both internal supply and maintenance procedures and stock and supply control activities. The team visits resulted not only in improved materiel readiness but also brought about significant savings to the commands.

In the special field of air defense, a HAWK supply and maintenance team has completed its first on-the-spot review of all HAWK organizations in the field. The team report, containing detailed recommendations for improving overall readiness posture, has been approved. The team will next look at HAWK supply and maintenance activities at the national level.

Innovations in formal logistic reporting systems during the year also served to pinpoint deficiencies and indicate desired improvements in materiel readiness. For example, major field commands are now required by the Secretary of the Army's "Command Supervision of Materiel Readiness System" to present periodic reviews to Headquarters, Department of the Army, on their readiness posture across the board—personnel, training, and materiel. Logistic indicators, used in regular command and unit readiness reports to establish the condition of materiel readiness for each unit, have been refined to show more accurately the true state of availability and serviceability of equipment. Major commanders' individual summaries of unit and materiel readiness reports have been consolidated and expanded to provide additional detail to Department of the Army headquarters. The Army Integrated Equipment Record Management Systems (TAERS), initiated 3 years ago, has been improved and simplified to reduce the workload on field commands. TAERS provides to logistic managers at all levels the essential elements of supply and maintenance information that are needed for the orderly and effective accomplishment of materiel readiness functions.

Materiel readiness depends, however, in large measure on the amounts of modern equipment in the Army inventory in relation to requirements of the active and reserve force structure plus necessary mobilization reserves. At the beginning of fiscal year 1965, the requirement for major items of materiel funded under the Procurement of Equipment and Missiles, Army (PEMA), appropriation was approximately \$23.5 billion, against which the Army had assets totaling roughly \$14.8 billion. The amount of the requirement was determined under logistic guidance furnished by the Secretary of Defense in August 1964 and which significantly stressed the relative importance

of reserve production capacity as well as force requirements. It provides fundamentally for initial allowances for the entire 22-division, quick reaction force (16 active and 6 Reserve), plus the reserves required to support the 16 active Army divisions until a regular flow of materiel from production lines can be established.

During the year, the proposed Reserve realignment has generated a tentative requirement for about a half billion additional dollars in PEMA procurement in fiscal years 1965-70. This plan provides for two special purpose divisions and five independent brigades (see chapter V) as an addition to the quick reaction Reserve force for which 100 percent equipment should be provided. Much of this equipment can be obtained initially from mobilization reserve stocks retained for the low priority divisions to be replaced under the plan and some is available from substitute assets made excess by modernization of the active Army. But if the Reserve realignment is carried out, much of this must be replaced over the next 5 years, thus producing an additional PEMA procurement requirement.

The problem of adequate inventory is inextricably tied in with that of modernization of the Army's materiel—another aspect of materiel readiness. By replacing equipment that is becoming obsolescent with new materiel and by adding to the inventory other equipment that possesses new and unique capabilities, the Army enhances unit combat power and mobility, and, at the same time, eliminates from Army stockpiles overage materiel. This overage materiel, as a general rule, demands excessive maintenance per hour or unit of operation. Newer models of equipment in most instances are more complicated than the items they replace and require a wider variety of more intricate maintenance skills, but this is more than offset by improved performance.

Modernization, however, is no simple one-shot affair. Each year new types of equipment or improved models emerge from the research and development effort. It is unwise, therefore, to make "over-buys" of current "new" models when even newer and better equipment is under development. The Army has sought a solution to this problem by maintaining a steady rate of modernization of its combat materiel, but in such a manner as to avoid massive block obsolescence of major segments of Army inventories. Currently, something over one half the Army's inventory is in modern equipment.

Some examples of new items placed in the hands of troops or added to inventories in quantity in recent years are:

- The diesel-powered M-60A1 tank, with more than twice the cruising range of the gasoline-powered M-48 series which it replaces.

- A new family of self-propelled artillery pieces that can travel across country at highway speeds.

— The M-113 armored personnel carrier which provides troops with increased cross-country mobility as well as an amphibious capability.

— The turbine-powered UH-1 Iroquois helicopter, which is replacing four obsolescent types of reciprocating engine aircraft presently used for tactical transport.

— The SERGEANT missile, which is highly mobile and easier to handle than the CORPORAL system it replaced.

— The HAWK, a surface-to-air missile system designed to combat high-speed, low-flying aircraft.

— A new family of frequency-modulated tactical radios, smaller and lighter than the types they replace and possessing a broader frequency range.

Planning for modernization of Army materiel has been considerably improved by inclusion in the Army Force Development Plan of an appropriate chapter on this subject. This chapter establishes a system of priorities for the development and procurement of new weapons and equipment systems and, for a selected number of major items, portrays in life-cycle charts a graphic picture of predicted future changes. It presents alternative goals and target dates, with estimated costs of each alternative, as a basis for integrating the modernization program into the Five-Year Force Structure and Financial Program.

The maintenance of an adequate and progressive rate of modernization depends on funds received under the PEMA appropriation and the deliveries of materiel procured with this money. Deliveries of PEMA equipment during the past two fiscal years and estimated deliveries in fiscal year 1966 are set forth in the accompanying table. As the table shows, the fiscal year 1965 deliveries were \$540 million less than those in fiscal year 1964. Most of the difference resulted from reduction in the amount of funds authorized for the procurement of Army items, the reduction of production rates for some high dollar value items, and the tapering off of deliveries from the large appropriations received for modernization for fiscal years 1962 and 1963. The value of deliveries during fiscal year 1966 is expected to be \$2.8 billion or \$445 million more than those for fiscal year 1965. The increase is due essentially to the fiscal year 1965 and 1966 Army supplemental appropriations and larger customer orders, primarily for ammunition.

At this rate of deliveries during fiscal year 1965, the Army was able to maintain a relatively consistent inventory of PEMA equipment and to initiate production of several new items such as the LOH-6 helicopter, the XMGM-51A SHILLELAGH missile, the FT-XM-548 cargo carrier, the FT-T118E1 combat engineer vehicle, a modified M-60A1 tank chassis, and the transportable radio station communica-

PEMA DELIVERIES

(In Millions of Dollars)

	Fiscal year 1964	Actual fiscal year 1965	Estimated fiscal year 1966
Total.....	2, 895	2, 355	2, 800
Firepower:			
Missiles.....	717	451	350
Ammunition.....	612	497	900
Weapons.....	102	55	50
Mobility:			
Combat vehicles.....	460	354	265
Tactical Support Vehicles.....	290	296	380
Aircraft.....	279	290	390
Communications and Electronics Equipment.....	305	265	315
Other Equipment.....	130	147	150

tions central AN/TSC 26. As of the end of the fiscal year, the quantitative status of materiel inventories is in an acceptable position when substitute items of equipment are counted.

The President's budget for the next fiscal year provides \$2,035.9 million in PEMA funds, including \$40 million for procurement of selected items in connection with the Reserve realignment. Approximately \$500 million will be available for equipment modernization and introduction of new combat capabilities, and an estimated \$600 million is considered applicable to reducing Army shortages in requirements. It is a relatively austere budget, representing a \$500 million reduction in the Army's original request. In the initial Army submission, costly technical features were eliminated that offered only marginal improvements in equipment, delivery of new items was scheduled at minimum rates so that production techniques could be refined at minimum expense prior to large quantity production, and some current items were deferred in anticipation of early development and production of newer items possessing significant military advantage. The \$2 billion PEMA budget will be adequate to maintain the current level of readiness but not sufficient to provide for the orderly and progressive rate of materiel modernization that the Army believes desirable. To meet the modernization goal established by the Army, an annual PEMA budget of \$3 billion would be required.

One particular area in which it proved necessary during fiscal year 1965 to initiate increased production was that of 2½ and 5-ton trucks. This was required to overcome readiness deficiencies and offset losses due to vehicle age. Some unprogramed resources from fiscal year 1964 and prior year recoupments were used to provide for part of this in-

creased production as well as to augment production of quarter-ton trucks and various sorts of trailers. Meanwhile, the GOER vehicles were troop-tested in Europe, and the Combat Developments Command conducted a study which will realign requirements for all tactical vehicles in the Army.

Fully as important to combat readiness as the provision of new equipment is the maintenance of the old. The Army spent \$397.8 mil-

YOU COMMAND BOTH MEN AND MATERIEL



BOTH MUST BE READY
HELP GET ARMY READY MATERIEL

Figure 8. Personnel and materiel readiness go hand in hand.

lion in fiscal year 1965 for depot level maintenance. Of this sum, \$265.4 million was used for major overhaul and other production programs such as equipment modification, renovation of ammunition, and other major repair operations; \$103.3 million of this latter amount was for reimbursable work for various customers. The balance of \$132.4 million went for maintenance engineering, operation and maintenance of facilities, and related areas. In addition to the \$397.8 million spent for depot level maintenance, \$168.2 million was used for maintenance in fixed field shops, \$159.7 million for direct Army work, and \$8.5 million for reimbursable work. None of the above figures includes the cost of maintenance performed by troop units.

Under the Army Technical Assistance Program, the Army Materiel Command provides maintenance assistance personnel on a worldwide basis, including civilian, military, and contract personnel. During fiscal year 1965 the Army continued the program, begun 3 years earlier, of replacing contract personnel, except for those utilized in new and complex equipment areas, with military or Department of the Army civilian personnel wherever feasible. Since 1962, contract personnel involved in the program have been reduced from 1,367 to 419, with savings reported under the Cost Reduction Program amounting to \$6.6 million. As a result of a DoD study initiated in September 1964 of practices in utilization of contract support services, the Army has requested additional manpower spaces to replace contract personnel engaged in direct Army work and MAP activities.

To improve materiel maintenance at organizational and direct support unit level, the concept of repair part selection and supply is being revised. The Prescribed Load List containing items carried by tactical units, and the Authorized Stockage List, similarly listing items to be stocked at the direct and general support units, will normally include a minimum of two each of high mortality repair parts for which there is a significant demand. This will eliminate the automatic zero balance when one item is used for a repair. As demand data is developed, the lists will be modified to insure that a sufficient supply of repair parts is carried by a unit to maintain its equipment for a 15-day period in combat without creating an excess load. Similarly, the direct support units will carry sufficient items for a 30-day period. Parts manuals will be revised and published in a new uniform format to simplify the selection and requisitioning of the repair parts required on the two lists. A supply clerk to maintain the Prescribed Load List has been authorized in new tables of organization and equipment for combat units.

Available equipment must be distributed in a manner best calculated to promote the successful accomplishment of Army missions. To this end the Equipment Distribution Planning Study System was

developed during the past fiscal year and placed in effect. Under this system, studies will be used to determine the logistic capability to support unit actions, to allocate items in short supply, and to direct distribution and redistribution of equipment under a priorities system. These studies will also be used in determining initial distribution of newly adopted items.

Supply Management

Improvements in supply management constitute most important contributions to materiel readiness. Since the reorganization of 1961, the Army has been moving rapidly to streamline its operations in the calculation of requirements for and the procurement, storage, and distribution of supplies. A common denominator of nearly all improvements is the increased use of automatic data processing equipment. New systems and organizations using this medium produce both significant economies and a speed and accuracy in handling logistical transactions impossible with purely manual methods of control.

As reported last year, the first two phases of the new Army Supply and Maintenance System (TASAMS) were completed on June 30, 1964. These involved the phaseout of Overseas Supply Agencies at ports of embarkation and the consolidation and reduction of the number of National Inventory Control Points (NICPs). During the past year the third phase—transfer of stock control functions from depots to NICPs—was completed (February 1, 1965) with 10 Army depots losing their stock control functions.

The transfer was accomplished without significant difficulties. There have been some problems, however, in obtaining and making operational all of the automatic data processing equipment needed for the new system at the Army Tank and Automotive Command and in the conversion of operations at the Ammunition Procurement and Supply Agency from manual to automated stock control. The target date for installation and operation of the fully automated system at the latter agency has now been set at January 1, 1966.

Meanwhile, a plan identified as the National ADP Program for AMC Logistics Management (NAPALM) has been established with the goal of providing all Commodity Command NICPs of the Army Materiel Command with standardized automated data systems utilizing standardized equipment with centrally prepared common programs.

Meanwhile, the fourth phase of TASAMS, reduction of Army depot storage and maintenance facilities, is progressing satisfactorily (see chapter VII, section on depot management).

As an outgrowth of probes of materiel readiness posture, the Army is developing a concept for Centralization of Supply Management Operations (COSMOS) in the Continental Army Command (CONARC). The concept involves the establishment of a stock control center in each of the five Army areas to compute supply levels and keep all supply records, with receipt, storage, and issue of supplies being accomplished at the individual installations. The system will use modern communications systems and automatic data processing equipment. The study group that designed it felt that the COSMOS system would lead to improvements in materiel readiness and mobilization capability as well as to a sizable reduction in the cost of supply operations in CONARC; it would also, they thought, provide the proper training base for field army supply operations under COSTAR.

Headquarters, Sixth Army, has been selected as the prototype COSMOS and preparations are under way for a pilot test with an operational date of June 1966. In this test, all of the supply and related financial accounting records of Sixth Army posts, camps, and stations will be eliminated and put on a computer at Army Headquarters.

Other Army Materiel Command applications of automatic data processing, completed or in the making, will contribute to greater efficiency in the logistical processes. A project undertaken for use of the lexical-graphical composer printer in automating page composition and master copy preparation is estimated to reduce printing costs by more than \$2 million annually for supply catalogs, parts lists, and other technical publications. Within the procurement functional area, AMC has initiated design of a system to provide automation of the procurement cycle—beginning with initiation of the supply-procurement requirement and extending through preparation of the purchase order/contract. Other efforts in procurement fields include use of computers to store and retrieve standard contract format clauses for use in procurement actions, mechanization of the PEMA procurement schedules to reflect the latest program changes, and automation of a standardized work ordering and reporting data system for hard goods and services. Computers being installed at major depots will provide for automated supply and mission support systems. Nine of these systems were automated in Phase I and the 11 scheduled for conversion under Phase II in fiscal year 1965 are in various stages of development. During fiscal year 1965, the AMC Major Item Data Agency (MIDA) became fully operational. It serves as a central data bank of information (gross requirements, assets, overhaul and repair schedules, procurement schedules, deliveries, net requirements, production background) on major items of

equipment. In February 1965, also, maintenance and distribution of the Army Master Data File (item data records, identification data, packaging data, freight classification information) was changed. Each inventory control point now submits item information directly to the U.S. Army Supply and Maintenance Command Catalog Data Office for consolidation and dissemination of change notices; at this point the item information is tailored to accommodate the need of each authorized recipient of the notices.

At the DCSLOG level, a data processing center provides functional support for DCSLOG and other Army staff agencies making logistical planning studies and budget calculations. Significant capabilities achieved by the center in fiscal year 1965 included the determination of the Army's ability to fight in several geographical areas of the world under different conditions of force level; consumption rates, and deployments as measured in terms of combat in monthly increments; the assessment of bomb damage to include application and measurement of simulated strikes against troop units, storage depots, and support facilities, and quantitative survival requirements; the selection and evaluation of PEMA budget items as a function of budgetary constraints, worldwide combat readiness, production base capabilities, and item and component bases; and costing of force levels of varying size and structure, providing asset data on each active Army and reserve component unit and worldwide assets in depots.

The Defense-wide standard automated requisitioning and shipment procedures, MILSTRIP and MILSTAMP, continued in effective use throughout the Army during the fiscal year. Several changes, expected to result in improvements, were put into effect July 1, 1965. Meanwhile, the proposed Military Supply and Transportation Evaluation Procedure (MILSTEP), a companion-piece to the others, being developed by a joint Ad Hoc Committee chaired by DSA, is tentatively scheduled to be placed in operation early in 1966. This data collecting and reporting system will provide, for the first time, a uniform method of evaluating supply performance of all Defense activities.

The Army Stock Fund is used to provide working capital to finance procurement of certain supplies for sale to consuming appropriations (both those of the Army and other governmental departments) and of inventories of the same items held in the system as mobilization reserves. During fiscal year 1965, the Army Stock Fund was extended worldwide. There are now eight separate divisions. The Army Materiel Command Division conducts the wholesale operation, computing requirements for all items of supply under the Stock Fund managed by the Army and initiating procurement from commercial suppliers and Government manufacturing arsenals. The items are then sold by this AMC Division to the seven other stock fund divisions, located through-

out the world. These, in turn, issue supplies to consumers and are reimbursed from appropriated funds. In fiscal year 1965, the Army Stock Fund procurement program for all eight divisions totaled \$2,332 million. Sales to customers totaled \$2,273 million and inventories on hand totaled \$1,811 million.

To meet the need for a rapid deployment capability, the Army continues to pre-position selected materiel configured to appropriate units at strategic locations. Moreover, to provide additional mobility to Army forces in the area, forward depot ships are being used to store selected items of equipment.

A floating maintenance facility to provide maintenance for Army aircraft is also under preparation. The vessel chosen for this role, the U.S.N.S. *Corpus Christi Bay* (formerly U.S.N.S. *Albemarle*), is currently at the Charleston Navy Yard undergoing conversion. The schedule calls for completion of the work by December 31, 1965, after which the ship will be ready for deployment overseas with an operational Army maintenance battalion aboard.

Depot Management

The fourth phase of TASAMS, as already mentioned, involves the reduction of Army depot storage and maintenance facilities. During the year four additional Army depot facilities were added to the initial TASAMS list of five scheduled for phaseout (including two turned over to DSA), making a total of nine. There was some initial slippage in meeting the programmed tonnage reduction at some depots, but in most cases the phased depot closures are proceeding on schedule. The Memphis and Utah Army Depots were turned over to the operational control of DSA on January 1, 1964. The relocation of the storage and maintenance mission from Memphis Depot was completed on April 1, 1965, except for 100,000 tons of engineer stream-crossing and earth-moving equipment which will remain in storage there under DSA responsibility. The transfer of the Army missions from the Utah Depot is scheduled for completion by the end of December 1965.

The phaseout at the Beaver Army Terminal in Oregon was completed in April 1965. The scheduled closure dates for the other Army depots involved are as follows: Fort Worth, Tex., December 31, 1965; Rock Island, Ill. (storage mission only), June 30, 1966; Schenectady and Erie in New York, December 31, 1966; and Black Hills in South Dakota and Sioux in Nebraska on June 30, 1967.

The experience so far with these depot closures indicates that the estimated savings of 3,178 personnel spaces and \$33 million may well be exceeded. The Army will continue to review storage space requirements for the purpose of achieving the most effective utilization of facilities

and resources, wherever savings can be made without effect on the performance of its mission.

Meanwhile, the Army, as part of a Defense-wide effort, is attempting to operate its storage facilities in the most efficient manner possible. A study made for the Department of Defense by the Logistics Management Institute concluded that there was considerable room for improvement and savings in depot storage operations throughout the Department of Defense. OSD then directed the test of a Warehouse Gross Performance Measurement System (WGPMS) at one pilot depot in each of the four military Services. The Army selected its Anniston, Ala., Depot where the test was conducted during July-December 1964. After review of the results, OSD formally established the WGPMS on February 1, 1965, and the Army plans for its phased installation at 13 depots by December 1965. The system provides for a coordinated program of development and adoption of warehousing standard methods and for quantitative measurement, reduced to numerical performance indicators where possible, of various facets of manpower utilization and depot performance. These data will be used for management analysis and budget review of warehousing operations and for the determination of manpower utilization trends.

Installations

The fiscal year 1965 appropriation for Army construction (MCA) totaled \$300.4 million exclusive of family housing. This permitted a slight rise in the construction effort aimed at improving living conditions and supporting active Army operations. Construction starts during the year totaled in excess of \$285 million and projects completed during the year cost a total of more than \$100 million. To provide for expansion and replacement of industrial facilities, the Army also started construction valued at \$5.4 million and completed facilities valued at \$28.2 million. The Army let contracts for construction valued at \$551 million for other Government agencies, primarily for the Air Force and the National Aeronautics and Space Administration.

Of the \$300.4 million Army program, \$33.7 million was for the construction of tactical facilities and the NIKE-X/SPRINT research and development program. This latter program was realigned, however, to place emphasis on the development of a system that could be deployed in phases and that would fulfill the requirement for orderly growth of the defenses of the continental United States. The realignment permitted the Army, subsequent to passage of Public Law 88-390, to revise construction schedules and defer contract awards for projects estimated to cost approximately \$25.5 million until fiscal years 1966 and 1967, without delaying research and development. This

slippage enabled the Department to fund critical new construction requirements in Southeast Asia, estimated to cost \$14.1 million, that otherwise might have remained unfunded.

The Army in its construction effort has continued to give full support to the President's policy of reducing expenditures in foreign countries to limit the outflow of gold from the United States, employing much the same measures as those reported last year.

Approximately one-fourth of the Army's physical plant at permanent installations at present consists of temporary World War II structures which have already served over four times their 5-year economical life expectancy. The deficit in permanent facilities, including troop housing (see chapter IV), amounts to about \$3.4 billion. In order to replace the World War II facilities in about 10 years, before structural failures require exorbitant funding, the Army is endeavoring to establish an annual replacement and modernization funding rate of about \$300 million. The level has risen progressively from \$52 million in fiscal year 1962 to \$170 million in fiscal year 1965, but remains below the desired rate. The Department of Defense, the Bureau of Budget, and the Congress have, however, recognized the need for higher levels in future years.

Department of the Army policy is to make maximum use of all its installations and to inactivate or declare excess all those for which no further requirements exist. Only those for which mobilization requirements have been established are maintained in a standby status. In accordance with this policy, major installations announced for future inactivation or classification as excess during the year included Fort Jay, N.Y.; Hampton Roads Army Terminal, Va.; New Orleans Army Terminal, La.; Brooklyn Army Terminal, N.Y.; Fort Douglas, Utah; and Springfield Armory, Mass. These, together with all other installations and facilities announced for closing during the fiscal year, will ultimately result in an estimated savings of \$41.4 million annually.

About \$635 million was spent on local maintenance and management of Army facilities in fiscal year 1965. Funds were not substantially increased despite increases in building footages and in material and salary costs. The backlog of essential maintenance and repair at year's end totaled over \$84 million.

The Army also had 55 Government-owned industrial plants under its control in fiscal year 1965, 9 in full operation and 26 partially active in production of material to meet current needs. The remaining 20 plants are being held in standby reserve to fill emergency requirements. Plants are retained in Government ownership only where there is inadequate capacity in private industry to produce items needed for current operations or in mobilization. The need for retention is

periodically evaluated, and such an evaluation study was made during the past fiscal year.

A shortage of plant maintenance funds during recent years has created a backlog of deferred facility maintenance. During the past fiscal year, \$5 million was made available to reduce this backlog, and at this rate it is expected that it can be eliminated by fiscal year 1969.

The Army Industrial Fund is used to provide working capital to finance research and limited production of goods and services needed by the three military departments and other Government agencies at certain of the Army's industrial- and commercial-type installations. Industrial Fund installations operate as quasi-corporations, facilitating use of management controls and accounting techniques similar to those of comparable privately owned industrial concerns. During fiscal year 1965, the Army had 23 activities under the Army Industrial Fund at 22 installations. These 23 activities included 10 arsenals, 4 proving ground and research activities, 3 transportation terminal commands, 4 depot maintenance divisions, 1 pictorial center, and 1 Defense printing service.

Revenues earned by the Army Industrial Fund in fiscal year 1965 amounted to \$754,789,000 against costs of \$754,775,000. Civilian employment in Industrial Fund activities as of June 30, 1965, was 56,638, reflecting a decrease of 1,262 since the end of the previous year. This decrease was due to a phase-down of several activities that are scheduled to close in the next few years.

Around the world the Army owns or controls 14.9 million acres of land which, with improvements constructed after initial acquisition, cost \$10.8 billion.

During the year, the Army disposed of 58,977 acres which, with improvements, had an original cost of \$193,499,890. An additional 29,304 acres, with improvements, having an original cost of \$86,640,712 were reported to the General Services Administration and disposal is pending. During this period the use of approximately 1,439,329 acres, temporarily not required for military purposes, was outgranted, and receipts in the amount of \$5,220,420 were deposited in the U.S. Treasury.

During the year, the Army acquired fee title to 123,397 acres of land. This included 28,242 acres for the expansion of Fort Carson, Colo., and the Pueblo Army Depot, Colo., and 5,593 acres for the expansion of Fort Riley, Kans. It also included 87,420 acres in Hawaii formerly used by the Army under temporary rights from the Territory of Hawaii and which were subsequently set aside pursuant to the provisions of Section 5d, Public Law 86-3, 86th Congress. The remaining lands were acquired for the expansion of Army Air Defense Command defenses and for the construction of reserve centers.

As real estate agent for other Government agencies, the Army ac-

quired approximately 6,381 land tracts for the Air Force, costing \$3,526,086. In support of NASA, the Army acquired 625 land tracts, costing \$3,525,915.

Transportation

The principal developments in this area in the past fiscal year resulted from the decision by the Secretary of Defense, on November 19, 1964, to designate the Secretary of the Army as Single Manager for Military Traffic, Land Transportation, and Common-User Ocean Terminals for the Department of Defense. As a result, on February 15, 1965, the Secretary of the Army established the Military Traffic Management and Terminal Service (MTMTS) at Washington, D.C., as a major field command of the Department of the Army. The Commander, MTMTS, was designated Executive Director for Military Land Transportation and Common-User Ocean Terminals for the Department of Defense.

MTMTS is responsible for regulating surface transportation of military cargo and personnel within the continental United States (a function performed since 1962 by the Defense Traffic Management Service under DSA) and the management of all military ocean terminals except those used by the Navy in support of the fleet. The Defense Traffic Management Service, Army terminal commands, Army and Navy common-user ocean terminals, and air traffic coordinating offices of the Army, Navy, and Air Force were consolidated to form MTMTS. The consolidation did not include air terminal operations, which continue as an integral function of the Military Air Transport Service (MATS), nor did it affect that portion of the Navy's tidewater installations used for fleet support. However, it did include other Navy terminals and the Joint Army-Navy Ocean Terminal (JANOT) established by direction of the Secretary of Defense under Army control at Oakland, Calif., on July 1, 1964. JANOT played an important role in providing "experience factors" for the consolidation of like facilities in other locations now under MTMTS jurisdiction.

The establishment of MTMTS was accompanied by a reorganization of the transportation function within the Army. On December 15, 1964, the Office of the Chief of Transportation was discontinued and all of its personnel and functions assigned to the Directorate of Transportation established in the Office of the Deputy Chief of Staff for Logistics (ODGSLOG). This action elevated the Army transportation staff role from Special to General Staff level.

With the establishment of MTMTS, certain transportation planning functions were transferred to that agency. MTMTS will be responsible for conduct of special transportation studies in support

of the Army and for the establishment of a Strategic Mobility Planning and Analysis System, in addition to its role in command supervision of ocean terminals.

With the exception of these specific tasks, the Director of Transportation in ODCSLOG continues to be responsible for the transportation functions previously assigned to the Chief of Transportation, and is the single point of contact for all transportation matters within Headquarters, Department of the Army.

In actual transportation operations, during fiscal year 1965 oversea movement of Army cargo, including solid fuel shipments to Europe, totaled approximately 8,291,300 measurement tons as compared to 8,785,000 measurement tons during the previous year. Solid fuels accounted for 1,548,100 measurement tons, an increase of 241,400 tons over fiscal year 1964 shipments. The movement of all other cargo reflected a decrease.

Oversea Army passenger travel during the year totaled 707,900 passengers. Approximately 402,800 traveled by air and 305,100 by sea. Airlift was used particularly to move military personnel to Southeast Asia and to lift short-tour personnel and men with critical military specialties to all oversea areas.

Many perplexing problems were encountered and solved during the year. For example, in December 1964, due to increases in tactical requirements, the Air Force found it could not handle military airlift of personnel and cargo to Southeast Asia on the same scale during 1965 that it had during 1964. Under peacetime conditions, no substantial augmentation of MATS by commercial planes could be expected. The Army, therefore, with the support of the other Services, requested Military Sea Transportation Service (MSTS) to establish a direct ship service (SEA-EX) to Southeast Asia, and this has been done. Reduction in surface delivery time has been assured and the congested airlift relieved considerably.

NASA requested Army assistance in the experimental development of helicopter lift of the Lunar Excursion Module (LEM) adapter, a segment of the Project APOLLO space vehicle. This metal adapter is a truncated cone with a base diameter of 22 feet, a height, with its tripod, of 50 feet, and a weight of about 4,700 pounds. Many technical difficulties were overcome, and on December 29, 1964, an Army Chinook helicopter successfully flew a dummy LEM adapter from Tulsa, Okla., to the John F. Kennedy Space Center in Florida. While one helicopter carried the adapter, another carried equipment and shifts of personnel to provide prompt service and repairs en route and a constant surveillance of the adapter during the flight. The experiment with the dummy was judged a success, and plans now call for the Army to lift 20 adapters for NASA by November 1968.

In addition to long hauls, the Army also has extensive use for administrative transportation services, that is, the use of motor vehicles, watercraft, and rail equipment for routine support of installations and activities both in the United States and overseas. The objective, in the interests of economy, is to have all administrative motor services provided by commercial design vehicles. Emphasis during the year was placed on modernization of the commercial design vehicle fleet and on replacing military design vehicles in administrative use with commercial types. The procurement program for commercial design vehicles is proceeding on schedule and the number of military design vehicles in administrative use has been reduced from 11,055 in 1960 to 2,600 at the end of this fiscal year (this figure includes some 1,435 trailers and semitrailers not in the modernization program). When the program is completed in fiscal year 1967, it should result in a saving of some \$35 million in replacement costs.

To meet urgent shortages, the procurement schedule for 4,000 $\frac{3}{4}$ -ton, 4 x 2 trucks was approved this fiscal year. Most of these will be assigned to units in the Continental Army Command and the Reserve. In addition, 1,200 commercially designed tractors have been acquired for Army long distance hauling in Europe.

Support Services

Support services include a wide variety of activities such as Army messes, laundries, commissaries, and auxiliary activities; property disposal activities; and national cemeteries and other military burial services. When the Army was reorganized in 1962, staff responsibility in this area was assigned to the Office of the Chief of Support Services, a Special Staff agency. During the past year this arrangement was reviewed and the conclusion was reached that it would be best to retain it rather than either to fragment staff responsibility for these support services or to assign a single General Staff agency responsibility for all aspects of clothing, equipping, feeding, and for meeting other personal needs of the individual soldier.

As of June 30, 1965, there were in operation 3,270 troop messes that, during the fiscal year, served 601,793,704 meals. Twenty-six central meat-processing facilities, 13 central pastry kitchens, and 21 garrison bread bakeries were engaged in providing food for the troops. The Army operated 179 commissaries and commissary stores with a total sales volume of \$391,664,769. The total dollar value of subsistence issues was \$266,053,886 for the fiscal year. There were 134 clothing stores, 8 clothing issue points, and 92 self-service supply centers, 70 laundries, and 39 drycleaning plants in operation throughout the United States and overseas.

At the beginning of the fiscal year, the Army was operating 80 property disposal activities in the United States and 21 in oversea commands. Plans were developed during the year to reduce the number in the United States from 80 to 60 by satellization, consolidation, or elimination as a means of reducing operating costs. The inventory value of excess, surplus, and foreign excess personal property turned over to property disposal activities worldwide during fiscal year 1965 was \$1,475 million. The inventory value of property sold other than scrap was \$381 million, and proceeds realized from all sales, including scrap, amounted to \$45 million. The total cost of the program was \$31.7 million.

In January 1965 responsibility for conducting sales of foreign excess property for all Services in Germany and Italy was transferred from the Army to the Air Force, though the Army still exercises operational control over Army disposal activities in these areas.

Considerable progress was made in fiscal year 1965 in meeting the growing need for additional burial space in national cemeteries under Army jurisdiction. The development of two additional burial areas in Arlington National Cemetery got under way on April 1, 1965. These two new areas will compensate for the withdrawal of 26 acres immediately behind the Custis-Lee Mansion for a park-like area. One of these sites is located at the former horse show grounds, the other encompasses part of a contiguous 21-acre tract of the South Post of Fort Myer. Work on the first area is scheduled for completion in July 1965; that on the second, in November 1965. Work was also begun on contracts awarded during the fiscal year for development of additional areas for gravesites within existing acreage at seven other national cemeteries. No national cemeteries under the jurisdiction of the Department of the Army have been closed to interments during the past fiscal year.

At the Arlington National Cemetery, moreover, repair and restoration of the old outdoor amphitheater, one of the landmarks of the cemetery, was completed in April 1965, and installation of a new underground electrical distribution system, replacing the present obsolete and deteriorated system, is scheduled for completion in August 1965. Contract plans and specifications for participation by the Government in the development of the burial site of the late President John F. Kennedy, in consonance with the plans prepared by an architectural firm retained by the Kennedy family, have been prepared under the direction of the Army Engineers. Bids for construction based on these plans and specifications were received on June 3, 1965, in the U.S. Army Engineer District, Norfolk, Va. Estimated time of completion of the work is 16 months after the successful bidder

is given notice to proceed with the work. As of April 1965 approximately 8 million people had visited the Kennedy gravesite.

Interments in national cemeteries under the jurisdiction of the Department of the Army during fiscal year 1965 totaled 46,005. A total of 160,613 Government headstones and markers were furnished to mark the graves of eligible deceased members and former members of the armed forces interred in private cemeteries throughout the United States and various foreign countries, and to mark all graves in national, post, and military cemeteries.

VIII. Research and Development

An active and relentless research and development program is essential to national defense and is the means by which we keep our Army modern and make sure that the American soldier is better equipped than a potential enemy. That goal requires research in the environmental, life, and physical sciences, and the development of materiel, techniques, and systems that will meet our future operational requirements.

The Army's budget for research and development was about \$1.4 billion in fiscal year 1965, approximately the same as last year and next (see table below).

FUNDING OF ARMY R&D PROGRAM BY OSD PROGRAM CATEGORY

(In Millions of Dollars)

Program category	Actual, fiscal year 1964	Actual, fiscal year 1965	Planned, fiscal year 1966
Research.....	81.1	88.9	81.5
Exploratory Development.....	252.7	256.8	259.7
Advanced Development.....	93.2	106.3	109.3
Engineering Development.....	696.1	678.5	659.7
Management and Support.....	171.1	222.7	242.2
Operational Systems Development.....	127.1	81.4	80.3
Total.....	1,421.3	1,434.6	1,432.7

Firepower

For several years the Army has been working on a design for a special purpose individual weapon (SPIW), to combine the point target capability of the conventional rifle with the area target capability of the 40-mm. grenade launcher. Based on an evaluation of four concept design models, two (those of Springfield Armory and Aircraft Armaments, Inc.) have been selected for further engineering development. The most promising of the two designs—or a combination of the best features of the two designs—will be selected for full-scale development.

Progress on the TOW antitank system (tube launched, optically tracked, wire command link) was highlighted during fiscal year 1965 by successful experimental firings and the start of prototype firings. Results to date have demonstrated the accuracy of the system. The TOW system will be a substantial improvement over present heavy antitank weapons.

Engineering and service tests begun on the General Sheridan armored reconnaissance airborne assault vehicle will provide integrated system testing of the Sheridan vehicle and the SHILLELAGH weapon system that it will mount. The Sheridan was type-classified for limited production in May 1965, and as the year ended, SHILLELAGH engineering design tests were completed and engineering and service tests were underway.

The United States and the Federal Republic of Germany continued the cooperative development of a main battle tank for the 1970's, selecting a concept for engineering development and initiating design of prototype tanks.

The LANCE missile system is being developed to replace the HONEST JOHN free rocket. It uses a modified inertial guidance scheme to provide a significant increase in accuracy over the HONEST JOHN, will have a greater range, and, using tracked vehicles that can negotiate inland waterways, will have a high degree of cross-country mobility. The LANCE contract was awarded in November 1962, and during the past year component and integrated system tests have been conducted. Early models of flight hardware and ground support equipment, including launchers and tracked vehicles, have had extensive testing. Testing of most guidance and control components has been completed. On March 15, 1965, the first LANCE was fired successfully at White Sands Missile Range, N. Mex.

Tests during the period July-October 1964 of the REDEYE, a shoulder-fired air defense weapon, demonstrated that the system was ready for full production and in February 1965 the Congress authorized the Army and Marine Corps to proceed with production plans. Meanwhile, engineer and service tests continued and troop training programs were prepared. In forward area air defense, a program is in progress to provide a limited number of self-propelled HAWK battalions and composite missile/gun battalions. The composite battalions will use the CHAPARRAL, consisting of four SIDEWINDER missiles mounted in a self-propelled vehicle, and a gun to be selected after competitive tests involving the Hispano-Suiza, Vulcan, and Duster weapons (see chapter III).

As the 1965 fiscal year opened, the Army took over from the Navy the Kwajalein Test Site in the Pacific, where controlled experiments are conducted to produce data for the design and development of the

NIKE-X defensive system and for offensive systems as well. The NIKE-X development program progressed in 1965 with testing of missile, radar, and support equipment. Tests of the multifunction array radar were started at White Sands Missile Range, N. Mex., in July 1964, where ballistic targets and aircraft have been successfully tracked, validating the design concept of the equipment. A "pop-up" ejection mechanism to launch the SPRINT, a high acceleration missile that is part of the NIKE-X system, was successfully tested in above-ground and launch-cell configurations. In March 1965 the Army announced the almost perfect test flight of the first SPRINT propulsion test vehicle at White Sands. Development of suitable hardened electric power systems for the NIKE-X system is entering the engineering test phase, and concepts are being studied for the use of diesel engines and gas turbines as prime movers in the generating plants.

Mobility

Wheeled vehicle development continued on 1 $\frac{1}{4}$ -, 2 $\frac{1}{2}$ -, and 5-ton truck models, and engineering and service tests on an articulated tracked carrier were virtually completed. The latter is an amphibious carrier developed under the United States-Canadian Development Sharing Program to provide a carrier for use in difficult terrain, including mud, soft marshes, jungle swamps, muskeg, deep snow, and tundra.

The light observation helicopter (LOH) development program moved well along during the past year. The LOH is a lightweight, reliable, and easily maintainable turbine-powered helicopter for observation, target acquisition, reconnaissance, command, and control missions. Three competing aircraft, the OH-4A (Bell), OH-5A (Hiller), and OH-6A (Hughes), were evaluated by a design selection board which found the OH-5A and OH-6A about equally acceptable. Competitive bids were requested and the initial contract awarded to the Hughes Tool Company for 714 aircraft. It is a four-place craft with a maximum speed of 130 knots and a payload of 400 pounds plus the pilot.

The Department of Defense had six vertical/short takeoff and landing (V/STOL) aircraft development programs in progress during the 1965 fiscal year. The Army is the managing agency for three of these programs and participates as a tri-Service member in the other three programs. The technology developed from all programs will be used in the three Army programs to determine the definitive military characteristics for a V/STOL surveillance aircraft. The purpose of the V/STOL surveillance program is to develop an integrated system for performing tactical aerial surveillance and target acquisition that

will substantially improve the Army's capability to perform the intelligence function of land combat. The new surveillance system would replace the present Mohawk aircraft and associated equipment in the Army inventory. Among the models undergoing test are the XV-4A, XV-5A, XV-6A, XC-142A, X-19A, and the X-22A, which employ various lift concepts with varying engine, crew, and lift capabilities. The latter three systems will provide V/STOL data applicable to the cargo transport role.

To evaluate the concept of a heavy lift helicopter, the Army purchased six Sikorsky YCH-54A helicopters, a military version of the Sikorsky S-64 with a normal gross weight of 38,000 pounds, a cruising speed of 95 knots, and a lift capacity of 8-10 tons. Four of these craft were assigned to the 11th Air Assault Division in the fall of 1964 for evaluation and participated in the AIR ASSAULT II field exercise. They attained a 75 percent availability rate while flying an average of 39 hours per aircraft per month. In one 8-hour period one helicopter moved various loads totaling 192 tons a distance of 10 nautical miles. In April 1965, the YCH-54A set several world records at Bridgeport, Conn.—1,000 kilograms lifted to 29,300 feet; 2,000 kilograms lifted to 27,500 feet; and 5,000 kilograms lifted to 21,250 feet.

The Advanced Aerial Fire Support System was conceived as an integrated system to include armament, avionics, and fire control equipment. It will be a stable, manned, aerial weapon platform equipped with a variety of weapons, will have a vertical take-off and landing capability, and will be designed to be serviced in the forward area of the combat zone. This system will replace the Army's present armed helicopters now being used in Vietnam and will have the primary mission of providing escort for transport helicopters, employing suppressive fire.

The Army in August 1964 issued a request for proposals from industry in connection with the new system concept. Twelve contractors responded, and two (Sikorsky and Lockheed) were selected in March 1965 to perform funded 6-month studies to define the development program.

Communications and Electronics

The Army is developing a new family of tactical radios for long-, medium-, and short-range use. For the longer range there will be four high frequency single sideband radios, all about one-third the weight and bulk of present equipment, to be used from battalion to corps or army level for voice, code, and teletype traffic. The AN/PRC-62, now being tested, is a manpack radio with a range of 25 miles. The AN/GRC-106, a vehicular radio with a 50-mile range, is already in production. The AN/GRC-108, the radio teletype member of the fam-

ily, is a shelter-mounted set currently being tested, and has a range up to 100 miles. Development has recently been initiated of the AN/ARC-98, the aircraft radio of the family.

The short- and medium-range radio family, a group which includes four sets, will be used in forward combat areas. The AN/VRC-12 vehicular radio, in production, has a range of 20 miles and will be used for company to division level. The AN/PRC-25 manpack type for platoon and company use is in production and its 5-mile range will be extended 2 to 3 times by an amplifier currently being developed. A short-range (1 mile) set, including the AN/PRT-4 transmitter and AN/PRR-9 receiver and weighing only 30 ounces, will be standardized in the near future. And the AN/ARC-54 aircraft radio in this family, which can communicate with all the other radios in its family, is in production. The AN/VRC-12 and AN/PRC-25 have been distributed throughout U.S. Army, Europe, and the two airborne divisions in the United States began conversion to these sets in May 1965.

In the satellite communications field, the Army's mission is to develop, test, evaluate, and operate assigned portions of the ground communications complex of the Defense Communications Satellite Program (DCSP) which currently consists of three projects: The SYNCOM satellite project, the Initial Defense Communication Satellite Project (IDCSP), and the Advanced Defense Communication Satellite Project (ADCSP). The U.S. Army Strategic Communications Command and the U.S. Army Satellite Communications Agency are responsible for carrying out the Army's mission in satellite communications.

As the fiscal year opened on July 1, 1964, the Army's surface communications complex supporting the SYNCOM project consisted of two fixed terminals, at Fort Dix, N.J., and Camp Roberts, Calif.; a large transportable terminal in the Philippine Islands; a shipborne terminal on the U.S.N.S. *Kingsport* in the Pacific; and an experimental portable terminal at Fort Myer, Va. This complex operated with SYNCOM II, a communications satellite positioned over the equator at an altitude of 22,300 miles. In August 1964 NASA launched the SYNCOM III satellite to a position over the equator at the International Date Line. The Army increased its support by deploying the transportable terminal from Fort Myer to Saigon, Vietnam, and a heavy transportable terminal to Helemeno, Hawaii. The capability of the Saigon station was enhanced with the arrival of another small terminal in October 1964.

The SYNCOM surface communications complex was completed in January 1965 with installation of a heavy transportable terminal near Asmara, Eritrea, and SYNCOM II was subsequently moved to a position over the Indian Ocean. Since July 1963, SYNCOM II has

been used for 5,260 hours for communications purposes, while SYN-COM III has been used for 4,766 hours since August 1964.

The major satellite communications effort of the Department of the Army in fiscal year 1965 was directed to developing a ground communications complex to support the IDCSP. This has included equipment development and site selection and preparation. When the system is fully operational it will be used to meet communications requirements for national command and control and for command and control of tactical and strategic forces.

The IDCSP, just discussed, is a stepping stone to ADCSP that will provide the Department of Defense with an operational communications satellite capability late in this decade and beyond. This objective and authority to define an operational system were announced by the Secretary of Defense on December 18, 1964. It is anticipated that the ADCSP effort will produce ground communications satellite equipment suitable for use in the field army.

In another cooperative effort with NASA, the Army continued to evaluate lunar resources of engineering significance and carried on applied research on extraterrestrial construction problems. Studies of nuclear powerplants, engine fuel systems, and general construction procedures for a variety of lunar bases were carried out at NASA's request. The potential application of lunar engineering technology to the solution of terrestrial problems faced by the Army was carefully considered in connection with terrestrial construction research. Army studies in the latter field indicate that private industry does not have adequate incentive to bridge the research gap between current Government investigations and the needs of future design and construction programs.

For several years the Army has had an operational aerial surveillance radar (AN/APS-94) capable of detecting fixed and moving ground targets on either or both sides of an aircraft. Now added to the radar is transmission equipment which almost simultaneously transmits radar data to a ground station. The radar and its transmission equipment make up the AN/UPD-2 system. The airborne component of the equipment is a transmitter that receives radar video information, aircraft ground speed and drift angle, and transmits these to a ground receiving set that separates fixed and moving target information and transfers it to film where it is developed within seconds of the airborne target acquisition. First units of this equipment will be delivered late in 1965.

For ground use, the Army is developing a highly mobile radar with an all-weather surveillance capability, for use along the main line of resistance. It detects most types of enemy ground activity and can provide simple fire direction against enemy targets. It is portable,

battery-operated (and therefore silent), and designed to detect personnel and vehicles and both stationary and moving targets. Target information is indicated to the operator by sound, meter indication, or oscilloscope display. A walking man may be reliably detected at ranges up to 4,500 meters, while vehicles and fixed landmarks can be detected at twice that distance.

In 1963, as the result of a broad solicitation of the electronics industry, the Martin Company, Motorola, and Radio Corporation of America were selected to perform competitive design studies for a division random access discrete address communications system (RADAS). These were completed in March 1964, evaluated, and a contract was awarded to Martin to proceed with development. The RADAS will provide the equivalent of automatic dial telephone service for selected subscribers within the division without the use of switchboards, wire and cable, and bulky radio relay equipment. It will permit communications on an individual or conference basis. Present schedules provide for a 3-year program to resolve the risk areas and to fabricate prototype models of the basic system equipment.

Combat Support

During the past year the Army has completed development of several items of night vision equipment, such as weapon sights and observation devices, which intensify light sufficiently to permit a soldier to see and shoot an enemy at night. Limited quantities are being procured for further testing.

An important development in the relationship between military medicine and Army operations is a new system of field medical treatment facilities called Medical Unit, Self-Contained, Transportable (MUST). Combat support hospitals composed of MUST components are capable of providing more definitive medical and surgical care closer to the front lines, and can move forward with the troops and be ready for full operation after arrival at a new location in less than half the time required by the tent-type hospital. Field hospital units can be tailored to the needs of the force being supported, regardless of weather and terrain. They are capable of administering modern medicine in an environment designed to insure the best probability of patient survival without imposing an increased burden on the combat commander. The components of the system are compact, lightweight, and easily transportable.

The MUST system will replace the traditional tent hospital with three basic components—a self-contained utility element, an expandable surgical element, and an inflatable ward element. The utility element is highly mobile and provides electric power environmental



Figure 9. The Army's new self-contained and transportable medical field hospital.

control and utility services for patient care areas. It stores sufficient cables, ducts, and hoses to connect with four shelters. No special unpacking or assembly is required. After being connected to a fuel source, the unit is ready to operate.

The surgical element is a rigid panel shelter with accordion sides that can be expanded quickly to provide three times the space available in its folded configuration. It will serve both as a shelter and as a shipping container for operating rooms, sterile supply preparation areas, pharmacies, clinical laboratories, oral surgeries, or X-ray clinics. Equipment and supplies essential to these services will be packed in the core of this element for shipping. The shelter and related equipment are designed so that six men can expand and prepare them within 30 minutes for treatment or diagnostic procedures.

The inflatable element, a double-walled fabric shelter, provides a large area of unencumbered space that will be used primarily as a patient ward. Other typical uses for it are as a receiving room, a pre- or post-operative area, or as a dispensary. An entry air lock, air filters, and pressurization assist in providing a clean medical atmosphere.

Also in the medical field, a military research program being carried on in Southeast Asia has found that American and other allied armed forces personnel are experiencing a previously unrecognized type of malaria which is not responding to any known prophylactic

or therapeutic measure. Treatment of this drug-resistant falciparum malaria is becoming progressively more difficult, heroic medical measures are required to save lives, and increased death rates are to be expected. Areas have been identified in Southeast Asia where entrance of U.S. armed forces will result in drug-resistant malaria infection rates approaching 100 percent. An accelerated program is in progress to develop new prophylactic and therapeutic agents, to develop all possible means for controlling the disease, and to determine the fundamental mechanisms of the drug resistance. A comprehensive 4-year research program to develop new antimalarials offers the best chance for success in the shortest period of time.

In other combat support developments, the Army has made considerable progress in planning for hasty airfield construction in theaters of operations in support of both the Army and the Air Force. A continuing effort already has developed materials, equipment, and techniques for rapid construction of airfields. These developments represent the best up-to-date compromise between construction speed, air transportability limitations, and specifications for high quality, deliberate construction. The materials include lightweight and waterproof nylon membranes to keep landing strips and helipads from deteriorating in wet weather and to prevent dust in dry periods. Various chemicals are also used to suppress dust and reduce dust hazards on and adjacent to airfields. Rapid site selection procedures and rapid earthwork techniques are being developed. Engineer troops are receiving intensified training in rapid airfield construction methods. Each of these factors contributes significantly to an improved Army capability to support massive aircraft operations in forward areas.

IX. Public Works and Military Engineering

Under the pressures of expanding world population, the conservation of natural resources has become one of the most urgent problems facing peoples and governments today. Comprehensive programs and an enlightened citizenry will be required to preserve the natural beauty and life-giving resources represented in our water, woodlands, minerals, fish, and wildlife.

Water Resources Development

During the past year the Army, through the Corps of Engineers, continued at an accelerated rate its water resources development program, a major element of the Federal program for conserving and developing the Nation's water resources. Comprehensive plans for major river basins, involving continuing Congressional coordination, should be ready by 1970. The Army continued also to participate in the activities of a variety of agencies such as the Area Redevelopment and Urban Renewal Administrations, the President's Appalachian Regional Commission, the Federal Council for Science and Technology, the National Academy of Sciences, and other Federal and State bodies.

Status of Projects

The Army had 94 channel and harbor and 23 lock and dam projects under way during the fiscal year. To meet the customary needs of commerce and navigation, primary attention in fund allocation was given to work on deep draft harbors and major inland waterways. The Army also participated in eight beach protection construction projects and two bridge alterations. Navigational project construction costs totaled \$263 million.

Thirteen replacement structures are being built at an estimated cost of \$670 million as part of a \$1.8 billion program to modernize canalized waterways. Replacement or reconstruction of existing locks and dams on the Ohio and Mississippi Rivers, the Black Warrior-Tombigee system, and the Monongahela River are among the most important projects in this program.

The country in dramatic fashion is reminded annually of the importance of flood control, and while protection has been provided against ravaging waters in recent years, much more remains to be done. In the year just completed the Army was working on 164 projects, and since 1936 has completed over 800. Despite this progress, which resulted in a record total of \$1.5 billion in flood damage prevention through projects in operation during the year, large sections of the country are still vulnerable to flood damage and the disastrous floods of the past year again provide evidence of the urgent need to translate control plans into projects.

Almost half a million kilowatts of generating capacity were placed in commercial operation at four Army hydroelectric projects during fiscal year 1965, and as the period closed over 9 million kilowatts of generating capacity were in operation at 43 projects in 20 States, representing 4 percent of the total generating capacity and 21 percent of the hydroelectric generating capacity in the Nation.

During calendar year 1964, 156.5 million visitors used recreational facilities at Army civil works projects, bringing total visits since 1946 to more than a billion. Over 4 million acres of new water areas are now open to the public for such recreations as fishing, boating, camping, picnicking, and observing wildlife in natural surroundings.

Construction on hurricane protection projects continued during the year at Providence, R.I.; New Bedford-Fairhaven-Acushnet, Mass.; and Texas City, Tex. Preconstruction planning continued on projects for New Orleans-Venice, La.; Wareham-Marion, Mass.; Port Arthur, Tex.; and Fire Island Inlet to Montauk Point, N.Y. Preconstruction planning was started on Narragansett Pier, R.I.; New London, Conn.; and Point Judith, R.I.

Over 3,600 projects are included in the present water resources development program with an estimated \$23 billion construction cost. About \$14 billion has already been appropriated, while \$5 billion in projected construction has been authorized but not yet funded.

An appraisal a few years ago of water resources needs to 1980 revealed that, based on median projections of population, gross national product, and industrial development, about \$28 billion in capital investment would be needed to meet demands. Gradual increases in annual water resources development appropriations will thus be necessary to keep pace with the mounting demands on the Nation's water supply.



Figure 10. Keystone Reservoir in Oklahoma, a public works project of the Army Corps of Engineers.

CIVIL WORKS APPROPRIATIONS

(In thousands of dollars)

Construction, General.....	956,956.2
Planning and Design.....	23,789.0
Construction	933,167.2
Operations and Maintenance, General.....	162,423.0
Mississippi River and Tributaries.....	77,862.0
General Investigation.....	210.0
Planning and Design.....	
Construction	51,952.0
Maintenance	25,700.0
Expenses, General	16,163.0
Investigations, General.....	24,194.0
Flood Control, Hurricane and Shore Protection Emergencies.....	14,150.0
Permanent Appropriations (Maintenance and Operation of Dams; Hydraulic Mining; Payment to States).....	2,131.0
Total	1,253,879.2

Construction

The number of projects underway and the number placed in use during fiscal year 1965 are listed below:

Type of project	Number under construction	Number placed in useful operation
Navigation:		
Channels and Harbors.....	94	27
Locks, Dams, and Canals.....	23	2
Bridge Alterations.....	2	0
Flood Control:		
Reservoirs.....	79	9
Local Protection.....	85	8
Multiple-Purpose, Including Power.....	30	6
Beach Protection.....	8	0
Total.....	321	52

Performance and Progress

Navigation:

Commerce (Great Lakes and Inland) (calendar year 1964)	248 billion ton-
(% of U.S. total).	miles.
Commerce Avg. Annual Increase, 10 yrs.....	4 percent.
Dams; Navigation with locks.....	162.
Harbors, Commercial, improved.....	500.
Locks.....	241.
Waterways, total improved.....	22,000 miles.
Waterways, in commercial operation.....	19,000 miles.
Traffic (Domestic and Foreign) (calendar year 1964)....	1,246 million tons.

Flood Control:

Damages Prevented, cumulative (June 30, 1965).....	\$14 billion.
Damages Prevented, Avg. annual increase, 10 yrs.....	\$620 million.

In Operation:

Reservoirs.....	252 (includes multiple purpose reservoirs).
Reservoirs.....	233 (with flood control storage).
Local Protection.....	660 (includes 180 under general authorities).
Reservoir Storage (June 30, 1965).....	196 million acre-feet.
Flood Control.....	79 million acre-feet.
Other.....	117 million acre-feet.

Electric Power:

In Operation (% of U.S. total).....	9.0 million kw.
Under Construction.....	4.0 million kw.
Additional Authorized.....	21.2 million kw.
Cumulative energy (June 30, 1965) (33 billion kwh fiscal year 1965).	356 billion kwh.
Energy avg. annual increase, 10 yrs.....	20 percent.

Water Supply:	
Municipal and Industrial Storage.....	2.3 million acre-feet.
Irrigation Storage.....	5.5 million acre-feet.
Storage, avg. annual increase, 10 yrs.....	6 percent.
Recreation attendance (calendar year 1964).....	156 million.
Attendance, avg. annual increase (over 10 yrs.).....	19 percent.

Nuclear Power Applications

Army applications of nuclear power at present can be divided into three categories—station nuclear powerplants, mobile nuclear powerplants, and the nuclear-powered energy depot.

Station nuclear powerplants, as permanent or semipermanent electricity and heat production facilities, no longer are considered as research and development items. The Army presently is operating two such permanent facilities, one at Fort Belvoir, Va., and the other at Fort Greely, Alaska. A third Army plant, fabricated in air transportable packages, was removed from Greenland in 1964 and is in storage in CONUS awaiting assignment to a new location. Two similar packaged plants have been developed by the Army program and are in use by the Air Force at Sundance, Wyo., and by the Navy at McMurdo Sound, Antarctica.

In the area of mobile nuclear powerplants, the Army is participating with the Atomic Energy Commission in engineering tests of the ML-1, a trailer-mounted, gas-cooled reactor plant. Field units of this type would provide the Army with highly mobile facilities in the 300-KWe range. In addition, construction of a 10,000-KWe floating nuclear powerplant, the *Sturgis* (MH-1A), will be completed late in 1965. Testing is scheduled to begin early next year.

Studies are in progress involving application of the mobile and station-type plants for use at hardened, underground sites. Applications in combination with sea water desalting equipment also are being considered.

Considerable progress has been made during the year in investigation and development of a nuclear-powered energy depot concept, a system which would utilize nuclear power as the basic source of energy to propel the Army's vehicles and aircraft. Possible methods under investigation include field production of fuels which could substitute for POL or which could be used with fuel cells and electric drive systems and direct application of nuclear powerplant output to recharge advanced concept electro-chemical engines. Technical feasibility and cost/effectiveness studies are in progress.

Pollution Abatement

The Federal Water Pollution Control Act of 1948 expresses the policy that Federal installations should control waste to prevent water pollution, cooperate with other agencies at the national, State, and local level in such matters, and in general provide leadership and example in the prevention of pollution. The Army pursues this policy at all installations and has responded to a recent inquiry of the Natural Resources and Power Subcommittee of the House Committee on Government Operations with a report on the status of progress in pollution control at 185 Army installation discharge points and 168 Army civil works discharge points. The Army's program for installing facilities to control pollution is about 95 percent complete. As the year closed, 25 projects costing about \$12 million were scheduled for construction over the next 4 years.

Natural Resources Programs

The Army gives careful consideration to natural resources in all appropriate projects. To provide recreation and protect wildlife have been stated purposes in many new civil works projects. In all projects where significant amounts of land and water are involved, master plans are developed in cooperation with interested Federal, State, and local agencies. These plans cover the preservation of natural beauty and vegetative cover as well as the wildlife resources and recreation potential of each project.

Timber sales in fiscal year 1965 from 1.4 million acres of managed woodland on Army installations amounted to \$4.1 million, an increase of 24 percent over last year, while woodland management costs of \$2.3 million were up 25 percent. Progress was made in developing adequate technical direction over the woodland management program.

Active fish and wildlife programs were operated at 103 Army installations under cooperative plans with the Department of the Interior and State fish and game agencies. The 1964 total of visits by the public to Army facilities for hunting, fishing, and other outdoor recreation will probably be surpassed in 1965.

Pertinent Army regulations are being revised to emphasize recreation and the preservation of natural beauty as integral parts of natural resources programs.

Emergency Operations

The Army during the period under consideration was called on to exercise certain of its statutory responsibilities for emergency flood control and coastal storm operations. Activities included flood fighting

and rescue operations, and repair and restoration of damaged flood control works. The Army also provided assistance under Public Law 875, the Federal Disaster Act of 1950, at the request of the Office of Emergency Planning (OEP). Aid was provided to civil authorities on many occasions during the year when a situation went beyond the bounds of civil capability. Emergencies included floods, tidal waves, tornadoes, hurricanes, forest fires, blizzards, and an earthquake. Some of the more notable instances are described below.

In August and September 1964, the coastal areas of Florida and Georgia were severely damaged by Hurricanes Cleo and Dora, while in October heavy rains associated with Hurricane Hilda caused damage to coastal levees in Louisiana and to agricultural areas in North Carolina. The President declared as disaster areas sections of Florida, Georgia, Louisiana, and North Carolina affected by these storms. The Army Corps of Engineers substantially completed in the region a disaster assistance program that cost about \$5.6 million. In December 1964, an unseasonable warming trend and heavy rains triggered damaging floods in Oregon, Washington, California, Idaho, and Nevada, further flooding followed in Oregon, Washington, and Idaho in January 1965, and the President declared the affected parts of the five stricken States as disaster areas. Total damage was estimated at \$479 million and only existing flood control projects prevented this from being far higher. Engineer assistance in flood fighting and rehabilitation work is estimated to have cost \$14 million. A continuing program of disaster assistance in the area will cost \$25.2 million.

Again, in March 1965, when a heavy snowpack in the upper Mississippi River basin created a flood potential, the Army Engineers initiated protective measures in the central States and communities likely to be affected, advising local authorities and supplying materials to supplement local resources. The success of flood control efforts at St. Paul, Mankato, and Winona in Minn., at La Crosse, Wis., and at Dubuque, Iowa, indicates the importance of preparatory measures. Extensive and prolonged flooding in April and May in Illinois, Iowa, Minnesota, Wisconsin, and Missouri lead President Johnson to declare a disaster situation in affected parts of these States. Preliminary estimates indicate that damage will run to \$140 million, and the Army through the Corps of Engineers is providing assistance in rehabilitation.

Spring tornadoes also struck the central states region and brought disaster conditions in Iowa, Minnesota, Illinois, Ohio, and Michigan. The Corps of Engineers, at the request of the OEP, conducted damage and debris removal surveys. In late April a severe earthquake with an epicenter near Seattle, Wash., and felt throughout the northwest-

ern states created damage of disaster proportions with an estimated loss of \$12.7 million.

Finally, in early June 1965, heavy rainstorms in eastern Kansas caused flooding on the Cottonwood and Grand Neosho Rivers that required Army technical engineer assistance, and late in the month heavy rainfall caused major flooding in the South Platte and Arkansas River basins, particularly in Colorado and the Denver area, with heavy damage to urban areas, roads, highway bridges, and public utilities. Again the President declared a disaster situation and the Army provided flood fighting assistance and initiated damage surveys.

Mapping and Geodesy

To meet the worldwide requirements of the Defense establishment, Army mapping and geodetic activities were expanded, with emphasis on highly critical areas. The Army has been participating with foreign governments throughout the year in basic mapping programs. Considerable progress has been made in Ethiopia and Liberia. Plans for establishing a precise traverse in the vicinity of the 12th Parallel in Africa, to fall within territory of seven countries, have been completed. When the traverse is established it will provide connections between existing geodetic data of Eastern and Western Africa and will be a big step toward establishing a horizontal datum for all of Africa.

Continuing progress in current mapping operations in Central and South America with a brisk upsurge of selected large-scale requirements to support the Interoceanic Canal Study has characterized this year's activity in the Western Hemisphere. Work also forged ahead during the year on a continuing survey being made by the Army and the British Government to establish a geodetic connection between the primary controls of Iran and Ethiopia. This, coupled with the 12th Parallel project, will constitute a major expansion of the basic world geodetic network.

The Army established four Laplace stations and measured one base line in Malaysia to strengthen the existing basic network. In the Pacific area the Army is participating in a tri-Service operation to provide a geodetic connection between the Marshall and Fiji Islands.

A satellite system for long line geodetic surveys, known as SECOR (for Sequential Collation of Range), has been operational in the western Pacific during the year and successfully positioned points in the Ryukyus and Marianas in relation to the Tokyo Datum. The system continues in operation using satellites at 500-700 nautical miles to extend the network in the Pacific Islands. Higher launches are scheduled to use the capabilities of the system over longer ranges.

Another phase of field activity that was expanded during the year was gravity surveys and the collection of gravity data throughout the world.

The military geographic intelligence programs of Army commands and Army components of unified and specified commands have been brought up to date to reflect current and anticipated needs.

X. Special Functions

As the Nation's land force, the U.S. Army has the organization, experience, capability, and versatility to carry out certain national functions of a civil nature. Among the special tasks that fall in the Army sphere of responsibility are the administration of the Panama Canal and the Ryukyu Islands, the direction of nationwide civil defense, public works, and rifle practice programs, and support of the Office of Economic Opportunity and the Job Corps. These matters are reported upon in this chapter, except for public works, treated in the preceding chapter, and civil defense matters, provided for in an annex to this report.

Administration of the Panama Canal

The Panama Canal on August 15, 1964, observed the 50th anniversary of its opening, commemorating a half century of service to world shipping and commerce.

As personal representative of the President of the United States, the Secretary of the Army has special responsibilities for Panama Canal matters. The Secretary of the Army acts as the "Stockholder" of the Panama Canal Company, a corporate agency of the U.S. Government responsible for operating the canal, and the Secretary also supervises the administration of the Canal Zone Government by the Governor. In turn, in recent years the Under Secretary of the Army has usually been appointed Chairman of the Board of Directors of the Panama Canal Company. The Governor of the Canal Zone has traditionally been an Army officer of the Corps of Engineers, serving also as the President and a Director of the Panama Canal Company.

After the anti-U.S. Panamanian riots and violence of January 1964 and the restoration of diplomatic relations in April 1964, and pending the outcome of the ensuing negotiations between the two governments, the local working relationships between the Canal Zone and the Republic of Panama were restored to a fairly normal basis during fiscal year 1965. In December 1964 the President proposed that an entirely new treaty be negotiated between Panama and the United States to replace the treaty of 1903, as amended, until the present canal itself is replaced by a sea level canal somewhere in the Central American area. Meanwhile, the non-U.S. employees of the Panama Canal as

well as the U.S. citizen employees went faithfully about their jobs, putting the ships through safely and efficiently day after day and carrying out the supporting activities of the canal enterprise.

Following the trend of the previous fiscal year, Panama Canal traffic continued to increase to new record highs in the first half of fiscal year 1965, totaling 6,185 transits of oceangoing ships during that period. Traffic declined during the third quarter, as a result of the U.S. shipping strike, then returned to the higher levels in the fourth quarter and resumed the upward climb. In the end, there were 12,203 oceangoing transits during the fiscal year, and toll revenues totaled \$67.2 million (including credits for transits of U.S. Government vessels) as compared with 12,200 transits in fiscal year 1964 providing tolls of \$62.5 million. In neither case, of course, was there any direct financial profit to the United States, although it received annual interest payments, since the revenues are applied against operating and capital expenses of the canal enterprise. Detailed data are published in the annual report of the Panama Canal Company and Canal Zone Government.

During the year, projected future capital programs for improving the canal and expanding its capacity were reviewed on a cost-effectiveness basis. Expected benefits were considered in the light of the prospects for a sea level canal. As a result, some necessary projects were continued in process or in future programs while others were canceled or modified or decision thereon deferred temporarily pending further developments regarding the prospective sea level canal. Actions to provide for such clear requirements as increased electric power supply in the Canal Zone were continued.

Although the existing Panama Canal continued to set new records of service and efficiency, the U.S. Government turned attention to a possible future sea level canal, and in this, too, the Army contributed in keeping with its traditional role. The Congress in September 1964 enacted Public Law 88-609, providing for an investigation and study to determine the feasibility of and the most suitable site for a new sea level canal, and in April 1965 the President appointed the five-member Atlantic-Pacific Interoceanic Canal Study Commission. The Secretary of the Army, assisted by the Corps of Engineers and in cooperation with the Department of State and Atomic Energy Commission, contributed to the preparation of the legislative proposals and the preliminary budgetary planning for the Commission. After the Commission was established, arrangements were undertaken for the Army Corps of Engineers to serve the Commission in carrying out site surveys and engineering feasibility investigations.

Administration of the Ryukyu Islands

Under the terms of the Treaty of Peace with Japan, the Ryukyu Islands are currently under U.S. administration. Okinawa is the largest island of the Ryukyuan archipelago, and because of its strategic location and the strength and versatility of the U.S. forces stationed there, it is the most important U.S. military base in the western Pacific.

Governmental Affairs

The Department of the Army administers the Ryukyus under a Presidential executive order that established a civil administration headed by a High Commissioner who is a member of the U.S. armed forces. The executive order provides for a Ryukyuan central government (the Government of the Ryukyu Islands) with executive, legislative, and judicial branches. The High Commissioner appoints the Ryukyuan Chief Executive, based on a nomination by the elected Ryukyuan legislature.

The gradual transfer of additional administrative functions to the Ryukyuan government continued during the year, and as the Government of the Ryukyu Islands took appropriate legislative actions, some 39 ordinances of the U.S. Civil Administration were rescinded.

Further efforts were made during the year to develop the islands' abundant human resources. Funds earmarked for education and training were almost doubled, from \$400,000 in 1964 to \$735,000 this past fiscal year. During the year 126 Ryukyuan students studied in 54 American colleges and universities, while 51 leaders and trainees were brought to this country for special study, observation, and on-the-job training in a variety of fields in which increased skills are urgently needed. The program for improving the educational facilities in the islands through purchases of school equipment, grants to improve English language teaching, and direct subsidies for salaries of indigent teachers was intensified.

The U.S. Civil Administration has provided additional technical assistance to keep pace with the Ryukyuan government's expanding assumption of control, and various U.S. Government and private agencies have contributed to the welfare of the island people in such fields as sanitation, public health, narcotics control, and medical training.

At the start of the 89th Congress the Secretary of the Army submitted legislation to compensate Ryukyuan for land rentals and for damages suffered during the period from the end of World War II to the signing of the peace treaty with Japan (1945-52). Final Congressional action on this legislation is pending.

Economic Affairs

Congress appropriated \$14.4 million for administration of the Ryukyu Islands for fiscal year 1965—the full amount requested. \$12 million of this appropriation was used for aid to the Ryukyuan economy. Of this amount \$4 million was programed to assist in the expansion of Okinawa's water supply system, which serves both military and civilian communities.

Statistics reflect moderate economic gains in fiscal 1964, despite a severe drought that extended over most of calendar 1963. The 1964 gross national product rose to \$328.1 million, a 10.4 percent increase over fiscal year 1963.

The Ryukyus purchased about \$4.3 million of American surplus agricultural commodities in 1965, bringing the total amount of funds generated under this program to \$8.3 million. These funds are used in turn to develop Ryukyuan livestock, poultry, and other industries.

The year's quota of cotton textiles exported to the United States, subject of an agreement between the Department of Defense and the U.S. Interagency Textile Administrative Committee that provides for voluntary control by the Ryukyuan government, was raised by 5 percent, from 9.5 to 10 million square yards.

Construction work on a \$15.2 million powerplant at Kin was completed in the spring of 1965, and by late May two of the four generating units were feeding 35,000 kilowatts into the civilian-military power system.

Promotion of Rifle Practice

The National Board for the Promotion of Rifle Practice (NBPRP), as its name implies, encourages and supports training in the use of small arms throughout the country among citizens who are not reached through the training programs of the armed Services. Under its mission the Board promotes matches, supplies arms and ammunition, and procures and awards trophies to winners, all to the end that individual Americans who may be called upon in time of emergency will be qualified to meet a basic requirement of national defense.

The Board has 25 members, military and civilian, and its president is designated by the Secretary of the Army. Under its program, enrollments in the first 9 months of the fiscal year increased from 403,555 to 419,767, organized into 5,794 rifle and pistol clubs. About half of the members were in the 12- to 18-years-old age bracket.

The Board joined the National Rifle Association (NRA) in co-sponsoring the 1964 National Matches as a training incentive. Over 7,000 competitors attended the matches, while 6,000 students attended Small Arms Firing Schools under the tutelage of instructors from the U.S. Army Advanced Marksmanship Unit. Thirty-one plaques were

awarded in the National Trophy Matches, among many other awards, and 45 pistol and a like number of rifle teams traveled to Camp Perry, Ohio, to participate in the competition as representatives of their respective States. Travel expenses were partially defrayed by the NBPRP. During the year the Board also sponsored a number of matches in conjunction with NRA regional competitions.

At the 1964 Olympic games in Japan, in the six shooting events, Americans won 7 medals—2 gold, 2 silver, and 3 bronze—out of 18 possible shooting awards, and established two world records. The NBPRP budget contains funds to support teams representing the United States in international marksmanship competition.

Support of OEO and the Job Corps

The Army has supported the Office of Economic Opportunity (OEO) and the Job Corps principally in the fields of personnel, logistics, financial, and medical services. Some 20 Army military and civilian personnel—recently reduced to 12—have been on loan to OEO. The Chief of Finance established an office at the Finance Center, U.S. Army, located at Fort Benjamin Harrison, Ind., to handle pay and allowances, allotments, transportation, and subsistence for Job Corps

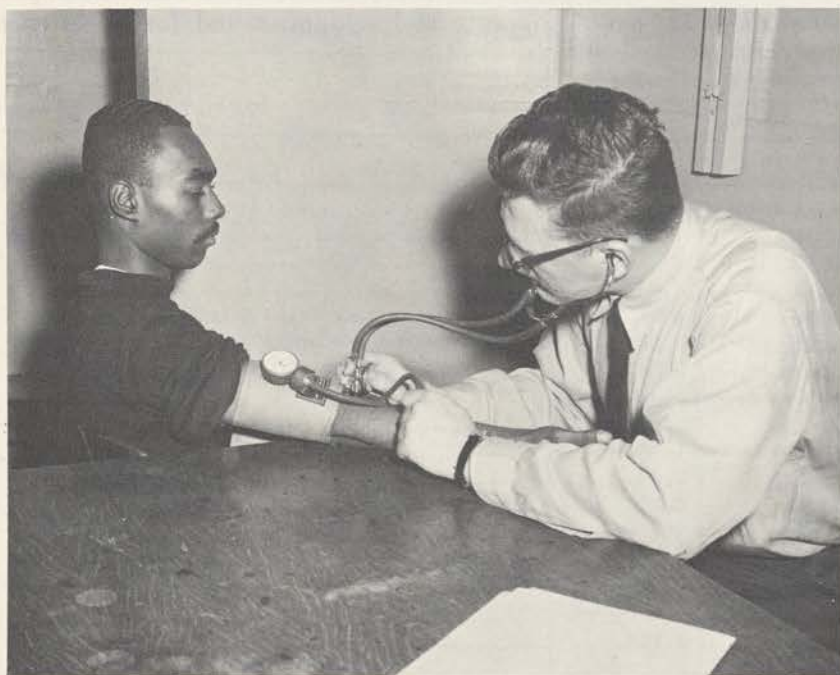


Figure 11. A Job Corps enrollee receives a physical examination at an Army installation.

enrollees and Volunteers in Service to America (VISTA) personnel throughout the country. Armed forces examination and induction stations and U.S. Army dispensaries and hospitals administered 3,734 physical examinations of Job Corps enrollees in the period January-May 1965. Personnel support was accomplished on a reimbursable basis by OEO.

Prior to passage of the Economic Opportunity Act of 1964, the Army, in response to numerous queries concerning support possibilities, did some preliminary planning and developed some procedures and policies along this line. After OEO and the Job Corps were established and a DoD-OEO agreement on support was signed, specific requests for logistic support were received. Army guidance for support of the new program by commanders, installations, and agencies was published in January 1965, and to the extent possible, authority was passed to the field. Costs of providing logistic support are reimbursable by the Job Corps.

Many of the larger Job Corps camps are located at inactive military installations. Detailed planning and coordination has been necessary to permit early occupancy by the Corps and to avoid interference with reserve component and other Army activities. Engineering support has included surveys of potential sites and contracting for rehabilitation of selected sites. Procedures have also been developed concerning the use of property and equipment and for subsistence support.

XI. Military Assistance

Over the past few years the military assistance program (MAP) has been attaining the ends set for it. U.S. aid has contributed to the security of many friendly nations, and a clear improvement in economic conditions has made possible a gradual transition from grant aid to self-help in many of the participating countries.

Funds

A comparison of Army materiel and logistics services furnished through MAP to friendly nations and international organizations in the last 2 years is illustrated in the following table:

MILITARY ASSISTANCE PROCUREMENT AND SERVICES

(Obligations in Millions of Dollars)

	Fiscal year 1964	Fiscal year 1965 (as of June 30, 1965)
Materiel Program.....	(328.0)	(385.0)
Combat Vehicles.....	17.2	20.7
Support Vehicles.....	37.8	33.4
Ammunition.....	66.3	69.9
Guided Missiles.....	12.4	49.4
Electronics & Communications Equipment.....	33.9	20.2
All Other Supplies & Equipment.....	160.4	191.4
Logistical Services.....	(194.4)	(147.3)
Supply Operations.....	86.9	88.8
Training.....	28.9	26.3
Administration.....	7.8	6.5
Construction.....		6.2
All Other Services.....	70.8	19.5
Total Program Obligations.....	522.4	532.3

Civic Action

While the chief purpose of a military establishment is to protect a nation against external aggression, armed forces are being called upon increasingly to perform a variety of roles. Important among these in the emerging nations is civic action. In the developing nation, civic actions have contributed to the well-being of the people, the reputation of the military forces, and the stability of the government. Consequently, U.S. support for military civic action has been expanding over the last few years.

Since 1961 the total U.S. investment in these activities among Free World or uncommitted nations has exceeded \$100 million and has involved cooperative efforts with more than 30 countries. In more than 30 other countries, civic actions are being performed entirely with local resources. Where the United States has agreed to help, training and equipment have been provided through the MAP, while construction materials and other consumables have been provided by the Agency for International Development (AID). Of all U.S. foreign assistance programs, military civic action is one of the most inter-departmental, both within this Government and within most participating governments.

While the amount of military civic action support through MAP has heretofore remained fairly constant, there was a downward trend in AID support in 1965, primarily because of the willingness and ability of the participating nations to take on a larger share of program funding.

During the fiscal year, civic action operations were directed at three main areas—Latin America, Africa, and Southeast Asia—and these were distinctly different in character. Also, an upsurge of interest in military civic action among Central Treaty Organization countries culminated, in October 1964, in the first regional conference on the subject held outside of Latin America. In Southeast Asia, notably in Thailand and South Vietnam, there was a steady increase in civic action activity by the respective governments and correspondingly in U.S. support.

Most Latin American nations have well-established civic action programs. Their military engineer units are organized and at work. American support has been principally supplied in the form of mobile training teams (MTT) to advise or instruct indigenous units in specific operations and to help resolve problems. During fiscal year 1965 the Army sent 15 such teams, comprising 88 officers and enlisted men, to 10 Latin American nations.

Africa poses a different problem, for the newly independent nations frequently have no military engineer potential in their armed forces.

A primary task here has been to help organize, equip, and train engineer units which may then perform a civic action role. The principal effort over the year was the deployment of an Army engineer training detachment of 20 men to Mali to organize an engineer construction company in that country. Teams were also sent to Jordan and Senegal to advise on engineer equipment maintenance procedures.

In Southeast Asia the Army has cooperated with AID in fostering engineer civic action projects at the village level. Army personnel worked with Vietnamese military and civilian personnel in many small water resources development projects to provide water for irrigation and for human consumption. In Thailand, U.S. Army engineers trained their Thai counterparts in equipment operation and maintenance in support of Thai civic action projects in the border provinces.

Of a slightly different category is United States help to the Republic of Korea through the Armed Forces Assistance to Korea (AFAK) program. Begun in 1953 by the Commanding General of the Eighth U.S. Army, this has proved to be one of the most successful programs of military-civilian cooperation ever employed by U.S. forces in foreign areas. Much of the war damage has been erased with the restoration of community facilities such as schools, public buildings, and bridges. Military assistance and special appropriations have been used to fund the program, but competing demands and cuts in these funds have caused a shift to local currencies generated from the Agricultural Trade Development and Assistance Act of 1954 to finance the AFAK program.

Foreign Military Training

The Department of the Army continued to support newly emerging African nations by training their selected Army personnel in service schools and civilian universities in the United States and through mobile training teams in the respective foreign countries. African personnel were trained in basic English and in a variety of military skills.

Because of the accelerated effort in South Vietnam, the 1965 training program for that country was accorded high priority on space allocations in CONUS and oversea schools. About 450 spaces were used during the year for combat and aviation training, while contract technicians supplemented Army teams in performing training missions in Vietnam.

The first military assistance to Malaysia was begun during the year. As a part of the program, the United States is furnishing training in this country and on Okinawa to selected Malaysian officers, essentially in infantry, engineer, and intelligence assignments. Spaces were

allocated for Malaysians in these courses, and the training will be continued in 1966.

During fiscal year 1965, 24 countries purchased training that was conducted either in Army schools in the United States or by mobile training teams in the customer country, all under the military assistance sales program. While the majority of this training is for the support of specific equipment, some of it is designed to insure that key officers are kept abreast of U.S. Army medical, engineer, infantry and command and staff concepts and developments. Total cost of this kind of training exceeded \$7 million.

A major step during the past year toward improving the quality of foreign students selected for training in the United States was the establishment of a standardized English language proficiency examination for all foreign students. They are now required to qualify at English comprehension levels commensurate with the complexity of a course of training. This requirement will help insure that the maximum return is achieved for dollars expended, since personnel will be able to comprehend the instruction and pass their knowledge or skills on to their fellow countrymen.

International Logistics

The Army materiel portion of the fiscal year 1965 Military Assistance Grant Aid program totaled \$429.4 million and was apportioned among 38 nations. Materiel valued at \$395.4 million in new and carry-over authorization was delivered during the fiscal year, leaving an undelivered balance of \$590.8 million. The United States pledge to support South Vietnam, coupled with the increased tempo of operations there, resulted in aid for that area being emphasized.

During the year the Army sold materiel and services valued at \$341.1 million to 52 foreign countries and three international organizations under the Military Assistance Sales Program. Included in these sales were missiles, weapons, tanks, and combat and support vehicles, aviation and surface materiel, ammunition, electronics and engineer equipment, and miscellaneous repair parts and support equipment. Sales of military equipment and services to foreign governments produce numerous benefits for the U.S. Government and industry. Such sales reduce the balance of payments deficit, bring orders to industry and thereby stabilize employment, reduce MAP grant aid, help modernize allied forces and improve their readiness posture, and promote standardization of equipment, leading to supply efficiency among allied forces.

The Army continued to publicize the materials and services available for sale, through publications, visits, displays, and through conducted tours for personnel from buyer countries.

The Cooperative Logistics program between the United States and friendly nations has some of the same objectives as the sales program—to improve operational readiness, standardization, and the balance of payments position—but the program is more complex. It encompasses multiple logistics support arrangements such as coproduction, cooperative research and development, and the joint use of training areas and supply and depot maintenance support. One of the major aspects is supply support, a program to provide repair parts through the U.S. Army logistics system on a continuing basis, in order to support American-designed equipment in participating countries. The number of agreements signed since the program's introduction attests to the worldwide interest in it. At the end of the 1964 fiscal year, four countries had negotiated supply support arrangements; six more joined in 1965, and negotiations were in progress with five others. Participating countries have deposited \$165 million to finance orders to meet increased stock levels and estimated consumption requirements.

During the coming year the Army will emphasize supply performance to insure customer satisfaction and expansion of existing arrangements to cover other U.S.-type equipment now in participating countries or to be purchased from the United States in the future.

XII. Summary

The Army ended fiscal year 1965 better prepared to meet emergencies than during any other peacetime period. The streamlining and modernization of organization, procedures and management techniques that began with the major reorganization 3 years ago are bearing fruit. Today the Army is ready, within the limits of resources committed to its stewardship, to play its assigned part in meeting any threat to our national security and interests.

The international events of the past year challenged Army readiness, and operations in Vietnam and in the Dominican Republic drew heavily on Army resources. While the situation in the Caribbean was easing at the end of the year, that in Southeast Asia portended sharply mounting demands of as yet unforeseeable proportions.

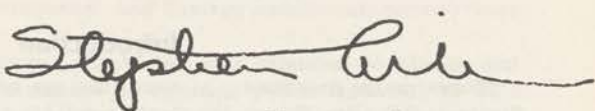
These twin operational emergencies in widely separated areas of the world have already tested to a limited degree the plans and capabilities of all of the armed forces, and their readiness to respond to unusual requirements while still maintaining other commitments around the globe and strategic reserves in the United States. The Army has so far met a test that is likely to become more stringent in the years to come. Our defense problem in 1965 is vast and complicated, and covers a wide variety of activities, as the content of this report attests. The test of our preparedness has come in a period when the Army is bringing highly advanced techniques and equipment to bear in the never-ending struggle to improve operational and materiel readiness. The varied lines of this activity, covered in the pages of this report, must be extended and enlarged in the coming year.

The achievements of the past year have placed us in a better position to meet the challenges of the future. The state of readiness of our 16-division active Army force has been considerably enhanced. We completed the concept and organization tests of the new airmobile division, and one of these divisions was approved for inclusion in the force structure at the moment when the United States is engaged, in Vietnam, in the kind of operation for which the new division is ideally suited and where its employment was being seriously considered as the report period closed.

In periods of active operational commitments, attention inevitably centers on our backup forces. While it was not necessary during the

1965 fiscal year to call up reserve units, that action could come as a result of the course of events in Vietnam or through an emergency in some other area. The restructuring of the reserve components under the plan drawn up in 1965 would enable the Army's backup forces to respond more promptly and efficiently to military needs.

National defense is as old as the Declaration of Independence and as new as tomorrow's recruit. From year to year it is possible to list achievements, appraise progress, and pose problems, and the differences over the course of a century and three-quarters have tended to be those of degree, not of nature. An annual report is not only a record of the year that has passed, but an introduction to the year ahead.



STEPHEN AILES,
Secretary of the Army.

Annex
ANNUAL REPORT
of the
OFFICE OF CIVIL DEFENSE
July 1, 1964, to June 30, 1965

Introduction

"Three major programs . . . constitute our general nuclear war forces: The Strategic Offensive Forces, the Continental Air and Missile Defense Forces, and Civil Defense . . ." This statement by the Secretary of Defense, presented to the Armed Services Committee of the House of Representatives in February 1965, defined the position of civil defense in the total defense structure. For the first time, the civil defense program was ranked with the Strategic Offensive Forces and the Strategic Defensive Forces as one of the major programs of the general nuclear war forces.

On the subject of fallout shelters, the Secretary of Defense said:

" . . . analysis clearly demonstrates the distinct utility of a nationwide fallout shelter program in reducing fatalities, at all levels of attack. . . .

* * * * *

" . . . any damage-limiting program which excludes a complete fallout shelter system to be equally effective would cost at least twice as much as a program which includes such a system . . . fallout shelters should have the highest priority of any defensive system because they decrease the vulnerability of the population to nuclear contamination under all types of attack."

The nationwide fallout shelter system.—Major facts on the development of this system during fiscal year 1965 include:

1. Location of fallout shelter space for 14.2 million persons in more than 11,000 facilities—this extends nationwide coverage to approximately 136 million persons in more than 155,000 facilities.
2. Licensing of more than 11,000 facilities—this increases the number of licensed facilities to nearly 82,000 with aggregate shelter space for more than 77 million persons.
3. Marking of more than 8,000 facilities—this increases the number of facilities marked to nearly 88,000, with a total capacity to protect nearly 76 million persons.
4. Stocking of more than 17,000 facilities—this increases to 63,000 the number of facilities stocked with sufficient supplies to accommodate 56.2 million persons for 8 days, or 33.8 million for 14 days.
5. Advancement of economical techniques to expand the system—this includes the use of architectural and engineering design or "slanting," special surveys to locate shelter space in small buildings and to evaluate shelter space in homes, and preparations for shelter ventilation.

6. Community shelter planning—community shelter projects were conducted in 57 communities throughout the United States to produce tested management, training, and administrative information for dissemination to all communities for use in suitable shelter planning.

7. Provision of professional and technical support—approximately 2,500 architects and engineers were certified as fallout shelter analysts, making a total of more than 9,200 qualified analysts. Workshops for 540 analysts were held, and architectural and engineering development centers were established at eight universities.

8. Establishment of State and local emergency operating centers—more than 1,900 centers were operational or being prepared. Of this number, more than 600 had been provided by Federal matching funds for construction and equipment.

Complementary systems.—Among the major improvements in the warning, communications, radiological monitoring, and damage assessment systems were the following:

1. The National Warning System (NAWAS) was extended to Alaska and strengthened by increasing the number of warning points from 621 to 685; NAWAS was realigned from nine to three warning centers—one primary and two alternate centers; and agreements for providing Federal funds for fallout protection were extended to include 232 warning points.

2. The Civil Defense Telephone and Teletype System was improved by installing separate circuits between OCD regional offices and State offices to permit simultaneous voice and teletype transmissions.

3. Of 2,361 broadcast stations in the Emergency Broadcast System, 540 selected radio stations participated in the protection program to assure their operational capability in emergencies. This was an increase of 331, and 219 had completed construction for fallout protection by the end of the year.

4. The radiological monitoring network was strengthened by the addition of more than 6,900 monitoring stations, making a total of more than 55,000 operational stations. More than 15,600 public fallout shelters were supplied with radiation monitoring kits, making these kits available in more than 67,600 shelters having a rated capacity for more than 61.5 million persons.

5. The damage assessment system was strengthened by updating and expanding the available data to include additional information on resources essential for survival.

Federal assistance.—Major achievements in helping State and local governments included the following:

1. All States and approximately 4,300 political subdivisions had civil defense organizations participating in OCD assistance programs. These organizations were staffed by approximately 5,400 paid civil defense personnel, and about 2.7 million State and local government personnel and volunteers had civil defense assignments.

2. Key civil defense personnel and instructors trained at OCD schools totaled 3,447, making a cumulative total of 25,838 so trained since fiscal year 1960. Through the Civil Defense University Extension Program (CDUEP) 32,203 key State and local officials were briefed on civil defense, increasing the total to more than 57,000.

3. Radiological monitors trained in fiscal year 1965 by the Army, in the CDUEP, and through the Civil Defense Adult Education Program (CDAEP) totaled 20,534, including 4,074 instructors.

4. Shelter managers trained in fiscal year 1965 through the CDUEP totaled 9,485, including 3,390 instructors.

5. In public education, approximately 277,000 persons were trained in personal and family survival, making a cumulative total of more than 1.1 million; about 832,000 persons were trained in medical self-help, making a cumulative total of approximately 2.5 million.

6. Rural civil defense information and education programs, operated in each State and in Puerto Rico, included civil defense training sessions for nearly 20,000 local leaders who informed approximately 890,000 persons about civil defense. More than 10,000 television and radio programs and almost 4,000 exhibits featuring the application of civil defense preparation to rural communities were shown to rural audiences, and 2.6 million copies of civil defense publications on this subject were sent to people in rural areas.

Research and various supporting activities.—These activities strengthened civil defense in the following ways:

1. Research continued to improve civil defense readiness by increasing the capability of men and equipment for civil defense operations. For example, further research and development on a prototype packaged ventilation kit resulted in substantially reducing its previously estimated cost; shelter occupancy tests produced information for training shelter management personnel; a model automatic radiological monitoring system was developed for evaluation; advancement was made in the detection and control of fires; and data were contributed for policy and operational decisions involving all aspects of civil defense.

2. Public information provided for dissemination of essential civil defense information in times of emergency and explanatory information in peacetime: *Civil Defense 1965* summarized the conclusions of the Department of Defense on the role of civil defense and defined the direction and scope of the nationwide civil defense program; nine new motion pictures on civil defense were released; kits of appropriate spot announcements were released to radio and television stations; and approximately 11,000 newspapers and periodicals were provided civil defense information. In addition, a campaign was started to gain fuller use of the resources of local units of national organizations in community civil defense.

3. Liaison with industry accelerated the distribution of civil defense information to industrial employees and helped expand the nationwide fallout shelter system in industrial facilities.

4. Liaison with labor organizations accelerated their support of civil defense at all levels of government and resulted in the development of training courses for about 13.5 million members and their families.

5. Participation in international civil defense activities of the North Atlantic Treaty Organization and the Central Treaty Organization and special arrangements with Canada provided for a meaningful exchange of civil defense concepts.

Program Development and Support

Fiscal year 1965 was the fourth year of continuity in development of the civil defense program in the Department of Defense. Centered on the concept of a nationwide fallout shelter system, the program includes four complementary systems providing for nationwide warning, communications, radiological monitoring and reporting, and damage assessment. These systems as well as other operational parts of the program—Federal assistance, research, and supporting activities—are discussed separately in other parts of this report.

Shelter Space Perspective

Most of the fallout shelter space that will be needed to accommodate the total population at work, at home, or in school can be obtained most economically by continuing to identify, mark, and stock fallout shelter space inherent in existing and planned structures, by making low-cost ventilation improvements, and by identifying fallout-shielded areas in small buildings.

The residual shelter needs will have to be met by providing fallout shelter through new construction. Efforts during fiscal year 1965 were concentrated on exploiting fully the existing potential for fallout protection and determining more precisely the nature of the residual shelter requirements. (See paragraphs on expansion techniques and planned shelter usage under section on nationwide fallout shelter system.)

Organization and Management

The Office of Civil Defense (OCD) is responsible for conducting the civil defense program at the Federal level. The Director of Civil Defense is directly responsible to the Secretary of the Army, and his position is considered equal to that of an Assistant Secretary of the Army. OCD responsibility and leadership are civilian in nature. At the end of fiscal year 1965, the organizational structure was as shown in figure 1. The Congress authorized a personnel ceiling of 1,000 positions for the year; these were assigned by OCD as follows: 446 at the department level, 444 at the eight OCD regional offices (see fig. 2), and 110 at various field locations, such as training and warning centers.

Federal Support

The OCD continued to marshal Federal support from the resources of the Department of Defense (DoD), including those of the armed forces, and the coordinated efforts of Federal civilian agencies. As reflected throughout this report, DoD resources were extensively interwoven in some manner with nearly all OCD operations.

The Secretary of Defense, on March 29, 1965, issued a revision of DoD Directive 3025.10, subject: Military Support of Civil Defense. This directive sets forth guidance to the military Services in planning for and controlling military support operations during civil defense emergencies by utilizing the State Adjutants General and their headquarters. In effect, the directive implemented a plan to provide each State with a military headquarters for planning and controlling military support operations during civil defense emergencies. Developed during fiscal year 1964 and approved by the Secretary of the Army and the State Governors, the plan simplifies and makes more effective the coordination and control of those military resources made available by all Services and DoD agencies to assist State governments in emergencies.

OCD coordination of the work of Federal agencies is primarily to assure that civil defense functions are carried out in consonance with major civil defense responsibilities assigned to the Secretary of Defense in Executive Order 10952. Several other Executive orders assigning civil defense responsibilities and emergency preparedness functions to various departments and agencies have provided the framework for this coordination. Contractual arrangements with several departments and agencies have also permitted the OCD to use their special competence in coordinating and expediting many of its functions.

State and Local Perspective

The best measure of success of the civil defense effort is the performance readiness of State and local governments to protect people from the effects of

nuclear attack. At the end of fiscal year 1965 this capability was supported by official civil defense organizations in the 50 States and in at least 4,300 local communities. Staffed by more than 5,400 full-time or part-time paid civil defense personnel, these organizations are legally an integral part of civil government.

Approximately 2.7 million State and local government employees and volunteers have civil defense assignments as part of these organizations. Under the guidance of the OCD, State and local governments continued to improve the capability of their civil defense organizations by planning and training activities. During fiscal year 1965, the performance readiness of many State and local civil defense organizations was tested in combating the effects of major natural disasters, for these organizations stand ready to serve whether the disaster be caused by nature or by nuclear attack.

Financial Summary

Approximately \$119.8 million was available for obligation in carrying out civil defense operations during fiscal year 1965. Of this amount, \$105.2 million was from new appropriations and the balance of \$14.6 million was carried over from fiscal year 1964. An additional \$1.8 million of prior year funds was held for obligation during fiscal year 1966 for Federal regional underground centers.

At the end of fiscal year 1965, the OCD had obligated more than \$94.8 million. The \$25.0 million of unobligated funds includes \$21.3 million which can be carried over into fiscal year 1966. Figure 3 shows the amounts obligated for specific budget activities in support of operational programs and functions.

Nationwide Fallout Shelter System

Operational Accomplishments

Public fallout shelter space for 14.2 million persons was located during fiscal year 1965, extending nationwide coverage to approximately 136 million. At the end of the year, space also had been marked for nearly 76 million persons, space had been licensed for more than 77 million, and space had been stocked to accommodate nearly 34 million. A summary of fiscal year 1965 progress is given below.

These accomplishments are the result of a major program started in September 1961. Its key elements include: (1) A continuing nationwide survey to locate public fallout shelter space in existing structures, (2) the marking and licensing of acceptable shelter space for public use, and (3) the stocking of licensed shelters with survival supplies.

Survey operations.—Each public fallout shelter included in this program contains space for at least 50 persons, allowing 10 square feet per person in ventilated space and 500 cubic feet in unventilated space. The minimum protection factor required is 40; i.e., radiation inside the shelter would be reduced to one-fortieth or less of that existing outside. Approximately 1.5 cubic feet of storage space per person is required to accommodate a complete assembly of shelter supplies.

Shelter survey operations in fiscal year 1965 were principally of an updating nature. These operations increased the nationwide shelter inventory by more than 11,400 facilities with an aggregate capacity for 14.2 million persons and boosted the grand total to more than 155,000 facilities with an aggregate capacity for 135.6 million persons. Major sources of additional shelter space derived from the updating operations were the result of new or modified construction and the application of improved criteria and resurvey procedures to structures previously estimated to have a marginal capacity or protection factor.

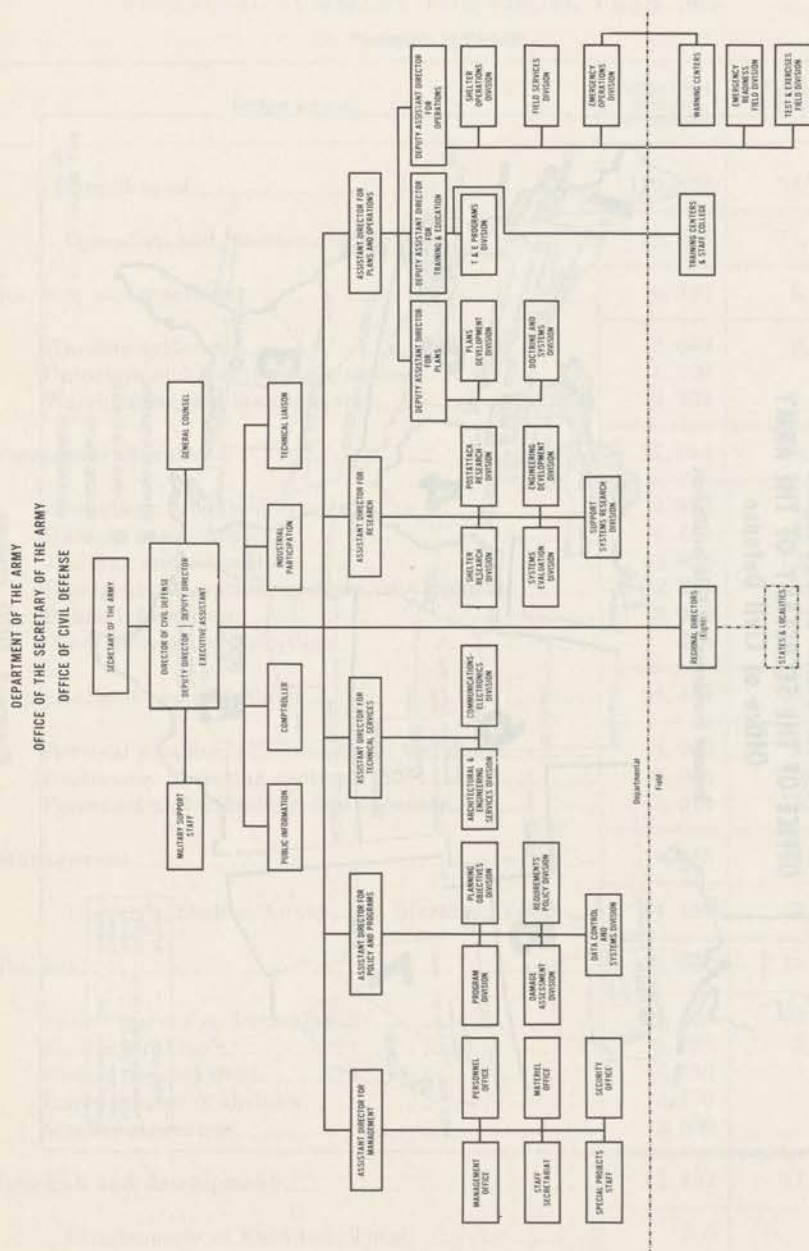


Figure 1. OCD organization chart.

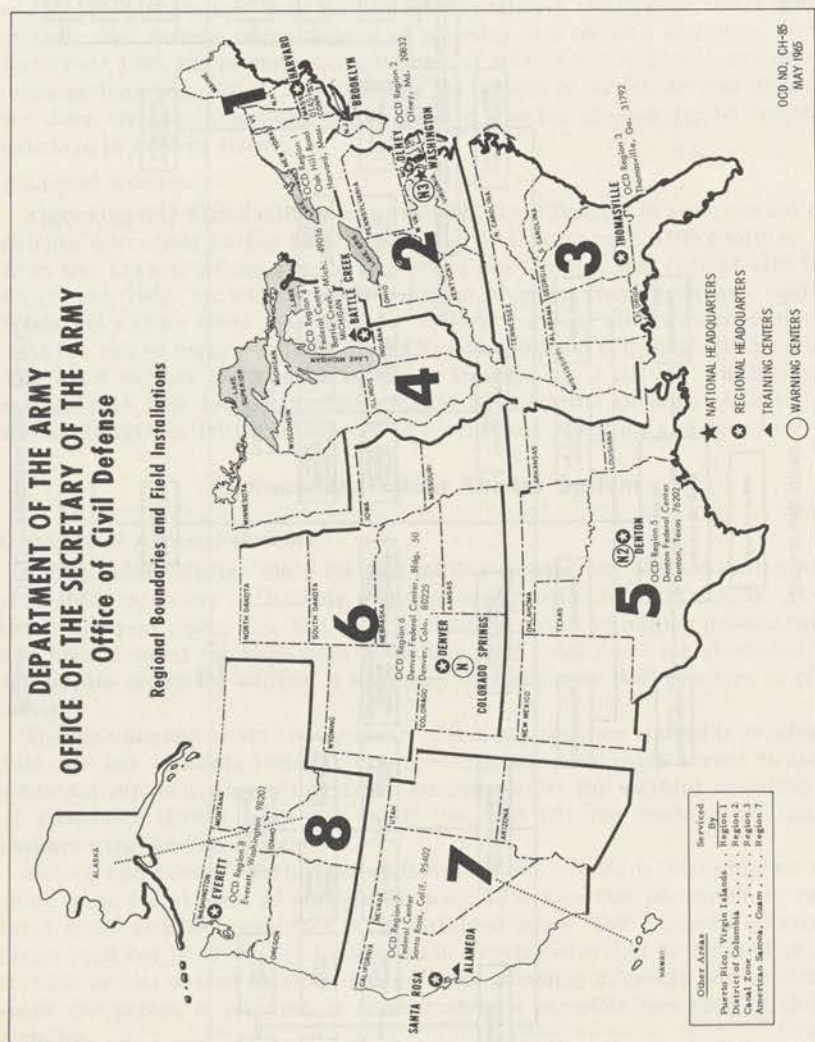


Figure 2. OCD regions.

Figure 3

FINANCIAL SUMMARY FOR FISCAL YEAR 1965

(In Thousands of Dollars)

Budget activity	Funds available for obligation	Funds obligated
Grand total.....	119, 824	94, 821
Operation and maintenance, total.....	74, 985	71, 303
Warning and detection.....	6, 992	6, 360
Warning systems.....	3, 030	2, 705
Detection and monitoring systems.....	1, 029	946
Warehousing and maintenance.....	2, 933	2, 709
Emergency operations.....	27, 044	25, 028
Emergency broadcast system.....	4, 843	4, 265
Damage assessment.....	4, 141	4, 098
Training and education.....	12, 623	12, 107
Emergency operations systems development.....	2, 231	2, 218
Public information.....	2, 910	2, 170
Other emergency operations.....	296	170
Financial assistance to States.....	26, 464	25, 581
Survival supplies, equipment and training.....	4, 900	4, 348
Emergency operating centers.....	6, 050	5, 761
Personnel and administrative expenses.....	15, 514	15, 472
Management.....	14, 485	14, 334
Research, Shelter Survey, and Marking, Total.....	44, 489	23, 477
Shelters.....	32, 067	12, 180
Shelter survey and marking.....	14, 368	7, 414
Shelter stocking.....	6, 699	2, 985
Shelter development.....	5, 750	316
Improvement of shelters.....	2, 750	481
Smaller structures.....	2, 500	984
Research and development.....	12, 422	11, 297
Construction of Facilities, Total.....	350	41

SUMMARY OF PROGRESS IN PUBLIC FALLOUT SHELTER PROGRAM,
FISCAL YEAR 1965

Program action	Number of facilities (in thousands)				Number of spaces (in millions)			
	End of fiscal year 1964	End of fiscal year 1965	During fiscal year 1965		End of fiscal year 1964	End of fiscal year 1965	During fiscal year 1965	
	Total	Total	Gain	Percent gain	Total	Total	Gain	Percent gain
Located.....	143.7	155.1	11.4	7.9	121.4	135.6	14.2	11.7
Marked.....	79.8	87.9	8.1	10.2	63.8	75.9	12.1	19.0
Licensed.....	70.7	81.8	11.1	15.7	62.8	77.2	14.4	22.9
Stocked.....	45.7	63.0	17.3	37.9	23.8	33.8	10.0	42.0

Updating operations also produced a considerable amount of data applicable to making more effective use of shelter under emergency conditions. In January 1965, as additional facilities were surveyed, operations were extended to help provide more precisely for various shelter needs, and these operations were coordinated with State and local defense planning officials to help them allocate shelter space to the people in each locality. Priority was given to those areas having high fallout shelter deficiencies, and especially to the 57 community shelter planning areas. Special shelter survey projects were also conducted.

Marking and licensing operations.—The OCD continued to furnish standard fallout shelter signs for the interior and exterior marking of public fallout shelters meeting the minimum requirements of the survey operations. More than 8,000 facilities were marked during fiscal year 1965, increasing the number marked to nearly 88,000 with an aggregate capacity for nearly 76 million persons.

Before stocking public fallout shelters with survival supplies, the OCD requires that property owners and local government officials sign a fallout shelter license or privilege form. During fiscal year 1965, licenses for more than 11,000 facilities were signed, increasing the total to nearly 82,000 facilities having an aggregate shelter capacity for more than 77 million persons.

Stocking operations.—Shelter stocking operations during fiscal year 1965 were extended to more than 17,000 public fallout shelters, increasing the number stocked with general survival supplies to more than 63,000. These supplies are sufficient to meet the needs of 56.2 million persons, the rated capacity of the shelters, for 8 days. A total of 33.8 million can be accommodated for a 2-week period. In addition, more than 15,600 public fallout shelters were furnished with radiation kits, bringing the number so equipped to over 67,600 with an aggregate capacity for more than 61.5 million persons.

Many public fallout shelters have been stocked to meet the needs of their rated shelter capacity for a 2-week period. Some shelters, lacking sufficient storage space and for other reasons, could not be stocked to accommodate their rated shelter capacity for this period. However, in many cases, water and food are normally available in the buildings where the shelters are located. The aggregate shelter space stocked corresponds to an average of 60 percent of the total rated shelter capacity of these facilities.

General shelter supplies ordered in fiscal year 1964 and delivered to Federal warehouses during fiscal year 1965 included food, sanitation kits, and medical kits in sufficient quantity to serve 12.8 million persons for 2 weeks. Added to supplies delivered in prior years, this completed procurement for enough supplies to accommodate 63 million persons. No additional procurement of general shelter supplies was initiated in fiscal year 1965 because of lack of funds.

About 16 percent of these supplies were placed in shelters during fiscal year 1965; 38 percent had been placed in shelters in prior years and at the end of fiscal year 1965 the remaining 46 percent, for use in filling local requisitions for supplies, were in warehouses.

The cost of procuring the general survival supplies since the inception of the program in fiscal year 1962 has amounted to slightly less than \$119.1 million. This includes supplies to accommodate 63 million persons for 2 weeks, except that water containers were procured for only 50 million since many shelters have trapped water available for emergency use. Other costs of shelter stocking were warehousing, transportation, and radiation kits. At the end of fiscal year 1965, the average cost of shelter stocking to the Federal Government was approximately \$2.43 per shelter space.

Expansion Techniques

During fiscal year 1965, several techniques designed to expand the inventory of the nationwide fallout shelter system were being developed or adapted for practical use, and information concerning them was being disseminated as it became available. These techniques, closely allied with several projects discussed in the section on planned shelter usage, were directed toward exploiting fully the fallout protection inherent in existing buildings and developing optimum protection in new construction.

Architectural and engineering design.—Information on new design techniques was widely disseminated among architects and engineers during fiscal year 1965. These techniques, developed late in fiscal year 1964, provided for enhancing inherent fallout protection features in new construction with little or no increase in cost and without sacrificing normal functional or esthetic qualities of the building. Use of these techniques is called "slanting."

As confirmed by the OCD booklet, *New Buildings With Fallout Protection*, TR 27, published in January 1965, architects and engineers have made an excellent start in applying slanting in designing new buildings. The 34 buildings described in the booklet show how preplanned, dual-use shelter was incorporated into the original design of buildings completed or under construction. Also, the booklet shows how architects and engineers have used simple and inexpensive design techniques to enhance the inherent fallout protection offered by these structures.

Slanting, applied to the construction of new Federal buildings, is an important source of public fallout shelter space. Cost estimates, formerly ranging from \$40 to \$50 per shelteree for incorporating fallout shelter space in new buildings, have been reduced considerably. In some large buildings the cost of incorporating shelter space may vary from zero to 1 percent of the total construction cost.

During fiscal year 1965, the OCD offered the General Services Administration (GSA) and other Federal agencies responsible for construction projects the advice of professional consultants qualified in slanting. These agencies generally accepted the concept of slanting and provided professional staff to develop fallout shelters by applying this technique without further OCD assistance. The OCD has assurance from the engineering services of the military departments that slanting will be used to full advantage in new military construction, and that

maximum use will be made of fallout shelter space already located in military structures.

More than \$13 million of the \$17.5 million fund for incorporating shelters in new and existing Federal buildings was returned to the U.S. Treasury before the end of fiscal year 1965. This fund, contained in the civil defense appropriation of the 1962 Department of Defense Appropriation Act, was only partially expended as the result of the limitation on shelter construction contained in section 303 of the Independent Offices Appropriation Act of 1963. Federal agencies to which OCD allotted this fund developed shelter space for thousands of persons before this program was discontinued. However, fallout shelter can be developed more economically in the future by applying slanting in designing new Federal buildings.

Special surveys.—A survey was begun to locate fallout shelters in buildings too small to meet the 50-shelteree-capacity minimum requirement in the regular nationwide shelter survey. Limited to the portion of 57 community shelter planning areas having shelter deficiencies, this special survey was designed to serve as a model for adding shelter space in small structures to the nationwide shelter inventory where needed. Samples completed indicated that shelter space for an estimated 20 million persons could be obtained from this source. Although OCD plans do not call for marking and stocking these shelters, their identification and location will help local governments solve their shelter deficiency problems.

At the end of fiscal year 1965, a sample survey of single-family homes was underway. Based on a feasibility test concluded in fiscal year 1964, the survey included about 22,000 homes located throughout the 50 States. Analysis of 17,000 responses revealed that approximately 55 percent of the homes have basements, of which about 10 percent have a fallout protection factor (PF) of 40 or higher and more than 75 percent have a PF of at least 20. Nationwide projection of the results indicates that homes have potential shelter with a PF of 40 or higher for approximately 13.5 million persons and potential shelter with a PF of 20 to 40 for approximately 89 million. After this project has been fully evaluated, electronic data processing procedures and instructions can be completed for extending the survey nationwide.

The OCD, at the request of the Army Deputy Chief of Staff for Military Operations, developed procedures for conducting a fallout shelter survey of overseas military installations. Workshops were held in West Germany, Korea, and Okinawa to train military personnel in survey techniques, and a data processing system was developed to handle survey data from military installations.

Shelter ventilation.—A large resource of potential public fallout shelter can be developed by improving the rate of ventilation in many shelters. An economical and effective technique for expanding the inventory of the nationwide fallout shelter system would be to develop this resource by stocking packaged ventilation kits in public fallout shelters. Such a kit was developed in fiscal year 1964. Further development of this kit in fiscal year 1965 resulted in substantially reducing its cost below the previously estimated \$2.50 per additional shelteree.

During the year, the OCD conducted a sample survey of presently ventilated public fallout shelters to obtain data that can be used to estimate the number of packaged ventilation kits required per shelter, and to design methods of distributing and placing them effectively within shelters.

Planned Shelter Usage

Closely related to expanding the inventory of the nationwide fallout shelter system is the need for planned shelter usage at the community level to assure (1) effective use of all identified and available shelter space and (2) full exploitation of the best available fallout protection that can be located in communities having shelter deficiencies. When this planning is completed, the precise shelter needs that will have to be met through new construction will be known. An equally important need for planned shelter usage is the effective functional support of shelter operations during civil defense emergencies. In fiscal year 1965, the OCD promoted planned shelter usage through a series of projects that included:

1. *Community shelter planning.*—Community shelter planning projects were conducted in 57 communities. Through contractual arrangements, the OCD focused the efforts of local urban planners, the U.S. Army Corps of Engineers, and State and local planning agencies as well as civil defense personnel on developing community shelter plans. This included matching people with specific shelter areas and produced tested management, training, and administrative information that can be disseminated nationwide and used for guidance by each political subdivision in developing an applicable community shelter plan.

2. *Direction and control exercises.*—To provide guidance for effective use of emergency operating centers and for directing and controlling emergency operations, the OCD conducted several exercises simulating emergency operations based upon the results of hypothetical nuclear attacks. Prompt and effective participation by local officials enabled the OCD to develop information helpful in solving key operational problems.

3. *Shelter support functions.*—Fiscal year 1965 arrangements, made with several contractors experienced in civil defense work, provided for study and analysis of major shelter support functions at the community level. The first part of this work carried out in fiscal year 1965 included: (1) Application of pertinent research materials; (2) quantitative evaluation of problems that would arise from light, medium, or heavy nuclear attacks; (3) analysis of existing State and local capabilities to cope with these problems; (4) analysis of the cost and effectiveness of alternate possible courses of action; and (5) recommended actions requiring Federal-State-local participation.

The second part of the work, mostly planned during fiscal year 1965, is designed to (1) produce recommended guidance materials based on field tests, (2) develop detailed outlines of training materials, and (3) produce recommended management procedures applicable to each community shelter support system.

Protective Structures

Of paramount importance to the effective use of the nationwide fallout shelter system is the protection of people responsible for (1) warning the public, (2) carrying on emergency communications, and (3) directing and controlling civil defense emergency operations.

Protection of warning points.—The OCD continued to furnish financial assistance to State and local governments, as necessary, to provide warning points with fallout protection, emergency power generators, and ventilating equipment. During fiscal year 1965, agreements signed with local communities extended this operation to 232 warning points. Also, construction of fallout protection and installation of equipment were nearly completed for 27 selected warning points covered in the prototype operation of fiscal year 1964; 20 communities already had facilities meeting established criteria for warning points.

Protection of radio stations.—As the result of financial assistance provided by the OCD, construction of fallout protection for 115 radio stations was completed in fiscal year 1965. This increased to 210 the number of stations provided this protection by means of Federal funds. In addition, nine stations either already had fallout protection or acquired it without expense to the Government. The purpose of these arrangements is to provide for continuous operation of selected radio stations under fallout conditions that may exist after nuclear attack. Protected areas would be necessary for dissemination of civil defense information to the public and for emergency operations. Since commercial stations are not normally equipped to operate under fallout conditions, they are provided Federal funds for this purpose. Participants are required to agree to provide and maintain fallout protection and emergency power equipment in their installations and special communication links to local emergency operating centers.

OCD regional operating centers.—The OCD has one permanent protected regional operating center located in Denton, Tex., for Region 5. Pending the construction or location of permanent protected centers for other OCD regional offices, temporary construction completed in fiscal year 1965 provides a minimum fallout protection factor of 100 for emergency communications facilities of OCD Regions 4 and 6. Similar interim protection for the other OCD regional offices is scheduled for completion in fiscal year 1966. The permanent protected center for Region 1, funded from fiscal year 1962 appropriations, was being designed in fiscal year 1965. Where sites permit it, this design will be used as a prototype for future construction of other OCD regional centers for which funds were included in fiscal year 1966 appropriations.

State and local emergency operating centers.—Federal matching funds obligated during fiscal year 1965 to assist State and local governments in establishing and equipping protected emergency operating centers totaled nearly \$5.8 million. New criteria issued for local centers reduced their cost and promoted maximum use of existing protected facilities. At the end of fiscal year 1965, 623 State and local centers had been financed by Federal matching funds. Of these, 193 were operational, 73 were constructed but not yet equipped, and 357 were in the planning, design, or construction stage. However, State and local governments, without the use of Federal funds, have established more than 1,300 emergency operating centers of which more than 1,000 were already operational by the end of the year.

Professional and Technical Support

Professional and technical support of architects and engineers has sustained the establishment and expansion of the nationwide fallout shelter system since it was started in September 1961. OCD work with architects and engineers resulted in the development of slanting techniques late in fiscal year 1964. Major projects and activities conducted to develop and maintain the professional and technical support of architects and engineers included:

Certification of fallout shelter analysts.—Approximately 2,500 additional architects and engineers were certified as fallout shelter analysts during fiscal year 1965, increasing the number to more than 9,200. The basic course in fallout shelter analysis was taught on a semester basis by qualified university instructors. It was also taught at the U.S. Navy Civil Engineer Corps Officers School and at the U.S. Army Engineer School as well as by traveling instructor teams and through a correspondence course offered by the University of Wisconsin.

About 700 shelter analysts attended an extension of the basic course in fallout shelter analysis, and about 800 engineers participated in a course in unique problems of shelter environmental control engineering. A total of 540 architects and engineers attended workshops in connection with efforts to expand the nationwide fallout shelter system and to assure that those conducting the survey of small structures were up to date on latest techniques in shelter design and analysis. Procedures placed in operation during fiscal year 1965 promote wider use of certified fallout shelter analysts. This does not include actual analysis and design services, but guidance and advice are offered on how architectural and engineering firms can achieve fallout protection through their own efforts.

University projects.—Major projects conducted at various universities included:

1. Establishment of an architectural and engineering development center in each OCD region at a university where the technical capabilities of the entire staff may be used to develop information on techniques for providing fallout shelter as a service to planners, architects, and engineers in its geographical area;

2. Shelter design studies at nine universities to provide for study of specific shelter element design problems and preparation of technical reports to make the findings readily available to architects and engineers;

3. A comprehensive design study, completed by the University of Kentucky, showing how municipal office buildings can be designed to include emergency operating centers and dual-use public fallout shelters;

4. A study of selected examples of good architecture, underway at Pennsylvania State University, to ascertain how buildings can be redesigned to incorporate dual-use shelter space without adversely affecting their function, appearance, or cost;

5. Faculty development activities that increased the number of institutions eligible to conduct fallout shelter analysis and design courses to 120 and the number of qualified instructors to 265;

6. Summer institutes on nuclear defense design at five universities for architectural and engineering faculties; and

7. A seminar for engineering school officials held in conjunction with the annual meeting of the American Society for Engineering Education at the Illinois Institute of Technology.

Design competition and technical information.—In April 1965, the American Institute of Architects (AIA) distributed copies of the *National Community Fallout Shelter Design Competition Awards*, TR-28, to architects, engineers, and community planners. This publication presents the winning entries of the second nationwide architectural design competition conducted by the AIA for the OCD. It featured the incorporation of dual-use public fallout shelter space in a shopping center. Results of the first competition, featuring the designing of elementary schools with dual-use public shelter space, were published in fiscal year 1963. In fiscal year 1965, the OCD made contractual arrangements with the AIA to conduct a third national competition to feature the incorporation of dual-use public fallout shelter space in community recreational facilities.

The OCD issued nine new publications on protective construction during the year, making a total of 38. Substantial progress was made in developing basic material for a publication presenting guidelines for nationwide adoption of building codes favorable to incorporation of fallout shelter in existing and proposed construction.

Complementary Civil Defense Systems

Operational systems essential to effective use of fallout shelters and to preattack planning and postattack operations are: Civil defense alerting and warning, communications, monitoring and reporting, and damage assessment. These complement the nationwide fallout shelter system.

Civil Defense Alerting and Warning

The Office of Civil Defense is responsible for alerting Federal agencies and State governments in the event of developments that call for actions to increase the Nation's readiness posture. Procedures have been established for disseminating appropriate alert notices within the Federal establishment and to the States. These procedures are tested weekly at the national level and at least quarterly at the regional level, either separately or as a part of military or civil defense exercises.

Federal warning systems are designed for disseminating warning to strategic points from which State and local governments are responsible for warning the public. The National Warning System (NAWAS) serves the continental United States, including Alaska. From three continuously manned warning centers, warnings and warning information can be sent to OCD regional offices and to 685 warning points. The primary National Warning Center is at Ent AFB, Colorado Springs, Colo.; alternate ones are located at Federal Center, Denton, Tex., and near Washington, D.C. Using a special voice communications system, they can directly and simultaneously alert OCD regional offices and the 685 warning points within a few seconds. These warning points are at key Federal locations and in State capitals and numerous other cities, and warnings can be sent from them to the public via State and local warning systems. Federal warning systems from appropriate military installations serve Hawaii, Puerto Rico, and other parts of the United States outside its continental borders.

A major NAWAS improvement, completed on May 1, 1965, was a realignment of the system which included a reduction in the number of OCD warning centers from nine to three. This realignment increased the flexibility and reliability of NAWAS operations, permitting them to be carried out from protected sites with greater economy and with better manpower utilization. To extend warning facilities to additional Federal installations and improve warning coverage, the number of warning points were increased from 621 to 685. Arrangements were also made to provide fallout protection for additional warning points, and NAWAS was extended to include 13 cities in Alaska.

During fiscal year 1965, preliminary studies were completed for the development of a radio warning system that would immediately alert the public of impending attack. These studies enabled the OCD to determine the operational requirements for the system as well as its component elements and pattern of operations. Contractual arrangements were made to provide the services and equipment necessary for engineering development and field testing of critical elements of the system.

Communications

Communications systems of special importance to the OCD are those designed for conducting civil defense operations and for addressing the public during emergencies.

The Civil Defense Telephone and Teletype System, designated NACOM 1 and formerly called National Communications System No. 1, is specifically designed for speed, flexibility, and continuity of service required for civil defense emergency operations. The system includes leased telephone and teletype services

connecting OCD national and regional headquarters and the State civil defense offices, and is the primary means of communication for coordinating Federal and State civil defense emergency operations. Fiscal year 1965 improvements in NACOM 1 included: (1) Installation of separate circuits between OCD regional offices and State offices to permit simultaneous transmission of voice and teletype messages, (2) addition of transmission facilities at all OCD regional offices for conducting voice conferences, (3) relocation of OCD Regions 4 and 6 communications centers to fallout protected areas, (4) provision of direct teletype connections of all regional offices with the Defense Communications System, and (5) installation of General Services Administration teletype connections at six OCD regional offices.

The Civil Defense Radio System, designated NACOM 2 and formerly called National Communications System No. 2, is a high-frequency radio network for transmission of voice, code, and radioteletype messages and is the backup system for NACOM 1. At the end of fiscal year 1965, NACOM 2 remained operational at an OCD emergency relocation site and at all OCD regional offices. The system was extended to one State, making it operational at 24 State installations and in Puerto Rico; contractual arrangements were made to extend its operations to 16 additional States.

The Emergency Broadcast System (EBS), managed by the Federal Communications Commission to meet requirements of the White House, the Office of Emergency Planning, and the OCD, relies upon the use of commercial broadcast stations for emergency communication with the public. The OCD continued to work with selected EBS radio stations to help prepare them to remain operational under civil defense emergency conditions. At the end of fiscal year 1965, of the 2,361 EBS stations, 540 radio stations had signed agreements to provide fallout protection and to obtain equipment for this purpose and maintain it; 219 had completed construction for fallout protection, and 137 of them had also provided required equipment.

Radiological Monitoring and Reporting

During fiscal year 1965, 6,932 radiological monitoring stations were established making a total of 55,174 operational Federal, State, and local stations. Many more monitoring and reporting locations are needed to complete the radiological monitoring and reporting system designed to collect, evaluate, and disseminate radiological fallout information in case of nuclear attack.

By the end of fiscal year 1965, the OCD had established a federally funded inspection, maintenance, and calibration program in 34 States and the District of Columbia. Other States and Federal agencies without maintenance facilities were served at federally operated repair depots.

More than 922,000 radiological defense instruments were distributed in fiscal year 1965. This included (1) those in operational sets furnished to monitoring stations and those in radiation kits issued for use in public fallout shelters, (2) more than 700,000 dosimeters and more than 35,000 dosimeter chargers for use by emergency civil defense workers, and (3) instruments issued to States and Federal agencies for training and other purposes.

Damage Assessment

The OCD continued to develop and improve damage assessment plans and systems as the most productive source of guidance for postattack survival operations. A cost effectiveness study, comparing the damage-limiting capability of shelters with that of other defense systems, was completed. Other damage-limiting studies produced estimates of the number of fatalities corresponding to

various combinations of hypothetical attacks and protection afforded by shelter facilities. Data derived from these and numerous other studies were used in civil defense planning and for guidance by Federal agencies and State civil defense offices.

The OCD damage assessment system is designed to develop initial postattack damage estimates quickly for national and regional use by means of centrally located automatic data processing computers. An independent and rapid method of estimating postattack damage to resources in standard metropolitan statistical areas is the Lattice Assessment Program. It is based on computing and graphing quantitative amounts of selected resources within 2.5-kilometer-square areas and provides (1) a primary method of damage assessment for State and local governments and (2) an alternate source of damage assessment data to that of computer printouts at national and regional levels. More accurate estimates of damage would later be derived from comparison of preattack and postattack photographs of damaged areas, and on-site inspection would be the basis for the final and most accurate damage assessments. In accordance with OCD arrangements, the Bureau of the Census is developing sampling techniques and enumeration procedures to provide estimates of the postattack population.

The OCD continued to work with Federal agencies and other organizations to program resources for civil defense emergency operations and to develop plans and procedures for meeting postattack requirements. In response to a request from the Office of Emergency Planning, the OCD prepared estimates of postattack requirements for health resources, fuel, food, water and electric power service, manpower, and housing.

During fiscal year 1965, the OCD data base was updated and expanded to include additional information on resources essential for survival. The OCD data base is the information on survival resources which, when combined with information on enemy threat or attack, provides guidance for improving pre-attack civil defense readiness and a basis for directing postattack survival operations. Major resources covered by the data base include population; fall-out shelter data; food, medical, and fuel supplies; engineering and construction equipment; selected military systems; utilities systems; and medical, health, and educational manpower and facilities. Data base improvements included work by (1) the Bureau of the Census on developing statistical sampling techniques for promptly obtaining estimates of the postattack population of each State and OCD region as well as that of the entire Nation; (2) the Public Health Service of the Department of Health, Education, and Welfare, in cooperation with the Housing and Home Finance Agency, on expanding and revising the inventory of water supply systems; and (3) the Public Health Service of HEW, on compiling an inventory of chemical and biological laboratories with capabilities for diagnosing human and animal diseases in addition to isolating and identifying vectors and crop diseases.

Federal Assistance Programs and Activities

Federal assistance extended to State and local governments is managed by the OCD to assure the efficient and economical development of maximum civil defense capabilities.

Technical Assistance and Guidance

Management of Federal assistance to State and local governments is expedited by an annual program paper and related semiannual progress reports required of each political subdivision participating in any civil defense Federal assistance

program or activity. The fiscal year 1965 preprinted program paper and related reports contained 124 local activities considered essential to a well-balanced civil defense program. These documents provide State and local governments firm guidance on actions required for an effective civil defense program, and, completely executed, they supply the OCD with information on estimated needs, actual accomplishments, and planned gains anticipated in the ensuing fiscal year. Approximately 4,300 participants, representing most of the population, submitted these documents in fiscal year 1965.

Policy and operational guidance were provided to Federal agencies and State and local governments by individual contacts and by group briefings. But the *Federal Civil Defense Guide* (FCDG), with publications of an operational or program nature keyed to it, remained the principal medium for this purpose. Several major additions to the FCDG were issued during fiscal year 1965.

Emergency operations plans were developed at both national and regional OCD headquarters in fiscal year 1965. Federal agencies and State and local governments are scheduled to participate in a nationwide exercise in fiscal year 1966 to test and evaluate these plans. Other means of providing technical assistance and guidance included: (1) Exercises covering operational readiness problems at each level of government, (2) use of military Standby Reserve officers in local civil defense, (3) contractual arrangements for American National Red Cross advisory services, and (4) the fiscal year 1964 agreement between the National Defense Transportation Association (NDTA) and the Department of the Army, OCD, which resulted in helping many local governments gain the help of local NDTA chapters in planning and expediting local civil defense programs.

Training and Education

Professional and technical training at OCD schools during fiscal year 1965 was given to 3,447 key civil defense personnel, making a cumulative total of 25,838 since fiscal year 1960. More than 32,000 key State and local officials participated in conferences conducted by 45 of the 52 colleges and universities that were active in the Civil Defense University Extension Program (CDUEP). Instructors trained through the CDUEP included 3,390 in shelter management and 4,074 in radiological monitoring; 175 instructors received refresher training in radiological monitoring. The CDUEP also provided training for 68 persons in civil defense management, 6,095 shelter managers, and 335 radiological monitors.

The Civil Defense Adult Education Program (CDAEP) provided training for 8,968 State and local radiological monitors, and the U.S. Continental Army Command (USCONARC) trained 7,157. The USCONARC also trained more than 8,000 State and local police in explosive ordnance reconnaissance and more than 800 for dealing with explosive and sabotage devices.

In the field of public education, the CDAEP trained 277,018 students and teachers in the 12-hour personal and family survival course, making a cumulative total of more than 1.1 million taught. Medical self-help training, under a program developed for the OCD by the U.S. Public Health Service in cooperation with the American Medical Association, was provided for about 832,000 persons, making a cumulative total of approximately 2.5 million.

Contractual arrangements with the U.S. Department of Agriculture continued to bring civil defense information and education to rural audiences. Nearly 20,000 rural leaders attended meetings on fallout shelter protection and later informed nearly 890,000 persons on how to provide fallout protection on farms and in small communities. In addition, copies of more than 2.6 million publications,

more than 10,000 radio and television programs, and nearly 4,000 exhibits featured the application of civil defense to rural areas.

Other training and education activities included (1) liaison with national education organizations and contractual arrangements with some that resulted in preparation of civil defense publications; (2) development of training materials; and (3) work on training requirements, status, and evaluation projects.

Financial Assistance

In fiscal year 1965, Federal matching funds totaling approximately \$25.6 million were made available to State and local governments in accordance with the Federal Civil Defense Act of 1950, as amended. Of this amount, nearly \$5.8 million was for emergency operating centers, more than \$4.3 million for supplies, equipment, and training, and nearly \$15.5 million for personnel and administrative expenses. In addition, \$62,087 was used for partial reimbursement of travel and per diem expenses of students attending OCD schools. As a result of this program, course completion certificates issued totaled 1,102 during the year.

Surplus Property

Federal surplus property valued at more than \$36 million was donated to States for civil defense use during fiscal year 1965. Since authorized by Public Law 655, 84th Congress, property having an acquisition cost of approximately \$309 million has been transferred to the States.

Emergency Supplies and Equipment Inventory

Supplies and equipment maintained for emergency use include 45 ten-mile units of engineering equipment available for local use to pump water during natural disasters and postattack operations. During fiscal year 1965 this equipment was loaned to 13 States for use in 39 communities to help overcome water shortages or combat flood conditions. Supplies and equipment in the inventory at the end of the year were valued at approximately \$7.6 million.

Research

Designed to provide the technical basis for civil defense planning and operations, OCD research continued to yield substantial results throughout fiscal year 1965. This was partly the product of the \$19 million research program started in fiscal year 1962. That level of funding permitted a comprehensive approach to the study of a wide range of problems requiring solutions basic to continued development of a sound national civil defense program. Lower funding levels in subsequent years have sharply limited the amount of research that could be done; however, by undertaking carefully selected projects and by continuing the most promising research already underway, appreciable progress has been made toward the solution of many problems.

In addition to providing useful data for making basic decisions in planning and operating the civil defense program, continued research helped to identify and develop more economical hardware and operational procedures as well as to improve the effectiveness of operational systems. The OCD selected contractors to perform research on the basis of demonstrated capability, technical competence, and productivity. Percentages of funds committed to various research groups during fiscal year 1965 and the 3 preceding years were:

	Fiscal years 1962-64	Fiscal year 1965
	<i>Percent</i>	<i>Percent</i>
Department of Defense (DoD).....	17.5	27.4
Federal agencies exclusive of DoD.....	17.7	7.6
Educational institutions.....	8.4	7.8
Private organizations, including industrial laboratories, research institutes and foundations, and quasi-govern- ment agencies.....	56.4	57.2
Total.....	100.0	100.0

Duplication of work has been avoided by closely coordinating OCD research projects with those conducted by other Federal agencies. This has frequently led to a joint effort on projects of mutual interest; e.g., some of the fire research efforts were jointly supported by the National Science Foundation, the Forest Service of the Department of Agriculture, the Bureau of Standards of the Department of Commerce, and the Defense Atomic Support Agency and the Advanced Research Projects Agency of the Department of Defense.

The OCD directed and monitored research projects in four major categories and obtained technical advisory services from selected laboratories to aid in the management of prescribed areas of research. The \$10.8 million fund available for research in fiscal year 1965 was distributed among the research categories and services as follows:

	<i>Percent</i>
Shelter	29.0
Support systems.....	23.4
Postattack	19.2
Systems evaluation.....	24.2
Management and support services.....	4.2
Total	100.0

Limited space precludes a discussion of individual research projects in this report. However, research in each major category is designed to provide long-term technological perspective as well as immediate improvements to the civil defense program. For example, a comprehensive and continuing study of the effects of various hypothetical nuclear attacks on selected communities is being conducted. Technological data available in each research category are fully exploited in analyzing these effects. These analyses result in defining research requirements and priorities more precisely and in improving assessment of the effects of attack and operational planning capabilities. Another example of results in research was the further development of the packaged ventilation kit. In fiscal year 1965, research resulted in substantially lowering the previously estimated cost of the kit.

Supporting Activities

In the light of nationwide and worldwide developments, a realistic perspective of the civil defense program is important to industry and to national organizations as well as to the general public. Some of the supporting activities designed to provide this perspective are discussed in the ensuing paragraphs. Other

major activities of this nature included (1) liaison with technical and scientific organizations, (2) international activities coordinated with the Department of State, and (3) functions covered by contractual arrangements and a memorandum of understanding with the American National Red Cross.

Public Information

Plans and preparations to provide the public with essential civil defense information in times of emergency continued to have top priority during fiscal year 1965. Closely associated with this priority was that of preparing information addressed to the public on the peacetime civil defense program, describing its functions and accomplishments as well as its future goals.

Among new informational material produced was *Civil Defense 1965*, released in April 1965. In addition to summarizing the conclusions expressed by the Department of Defense on the role of civil defense in the Nation's strategic defense structure, this publication defines the direction and scope of the nationwide civil defense program. Distinguished Service citations were awarded to 20 communities that have provided stocked fallout shelter space for their entire resident population. New motion pictures released included four that form a series, *Primer for Survival*. Intended primarily for television, it is also available for general use. Two new films, *The Protected School* and *Texas Has a Brand New School*, show the incorporation of new architectural and engineering designs to provide fallout protection in new construction at little or no increased cost and without sacrificing functional or esthetic qualities. Another film, *Though the Earth Be Moved*, a documentary of the Alaskan earthquake of March 1964 and related recovery actions, was also released. In addition, two kits, containing a new series of radio and television spot announcements, were released to more than 5,000 stations.

A series of information publications on community organizations and civil defense was continued and expanded. By the end of June 1965 more than 560,000 copies of the basic publication, *Community and Family Service for Civil Defense*, H-11, had been requested, and two volumes of an additional publication, H-11-1 and H-11-2, *Meetings That Move*, were issued in this series during the year. Also, a booklet, *Community Involvement in Civil Defense*, H-11-A, was prepared for the OCD by the American National Red Cross. A campaign, closely allied with these publications, was started by the OCD to gain fuller use of community organization resources for civil defense.

Continued progress in disseminating civil defense information was indicated by the 11,744 requests received for OCD motion pictures over a 6-month period. The film *About Fallout* was rated sixth in the number of requests for showing among more than more than 4,000 military and civilian films. The film *The Day That Made a Difference* was given an honor award by the Educational Film Library Association. Civil defense was further publicized by (1) issuance of 20 information bulletins, (2) distribution of a newpicture page on slanting techniques to about 11,000 newspapers and periodicals, (3) display of OCD exhibits to an estimated 27 million persons, and (4) contribution of radio time by approximately 2,400 broadcasting stations.

Industrial Participation

Major accomplishments in helping business and industry attain civil defense objectives during fiscal year 1965 were achieved principally through OCD cooperation with Federal agencies and industry. This resulted in (1) developing and disseminating industrial civil defense information; (2) bringing civil defense guidance to industry by means of conferences, seminars, and training

activities; and (3) expanding the nationwide fallout shelter system in industrial facilities.

Approximately 350,000 copies of civil defense publications applicable to business and industry were distributed through Federal agencies, State and local civil defense offices, business and industrial firms, and national professional and trade associations. A new civil defense publication distributed during fiscal year 1965 was *Civil Defense and Emergency Planning for the Petroleum and Gas Industries*. Distribution of a total of 75,000 copies provided detailed civil defense guidance to key management officials of the oil and gas industries. Another publication, *Civil Defense in the Minerals and Solid Fuels Industries*, was sent to those who would be responsible for production of minerals and solid fuels following nuclear attack. In addition to joining with the OCD in the preparation and distribution of industrial and defense publications, Federal agencies gave their employees 750,000 copies of civil defense publications on home preparedness.

A motion picture film, *Mutual Aid—The "Us" in Industry*, was distributed for use in industrial civil defense. By dramatizing the formation of an industrial mutual aid association and its disaster control operations, the film encourages and motivates industry to join with local governments in civil defense efforts. Approximately 3,000 reproductions of a table-top exhibit of industrial civil defense were distributed by the OCD to business and industrial organizations. The exhibit features responsibility of industrial leaders to provide fallout protection for employees and for the public in commercial and industrial facilities. About 8,500 business, professional, and civic leaders obtained industrial civil defense information and guidance through conferences and seminars conducted by 21 State and local governments in 19 cities and by professional and civic organizations and educational institutions. More than 11,000 senior military officers and key civilian leaders who attended national security seminars conducted by the Industrial College of the Armed Forces in 14 cities obtained civil defense material provided by the OCD, as did also those who attended courses conducted for executives in government and industry by the U.S. Army Military Police School, Fort Gordon, Ga.

Negotiations were conducted with more than 75 multiplant firms to encourage them to adopt corporate fallout shelter policies. These primarily involved the authorization of company divisions and subsidiaries to license facilities for use as public fallout shelters and to include dual-use shelters in new construction. Public fallout shelter space for many additional thousands of persons has been licensed as a result of OCD liaison with industry. Many firms have also adopted the policy of including dual-use shelters in new or modified construction.

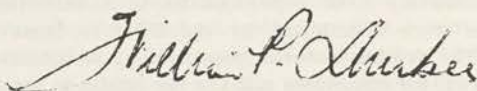
Labor Support

In response to OCD liaison with labor and trade unions, these organizations continued to accelerate their support of civil defense at all levels of government. A major move during fiscal year 1965 was the preparation of civil defense training courses primarily designed to make the resources of the 13.5 million members of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) and their families more available for civil defense operations. Available to AFL-CIO or independent unions, these courses are (1) labor's supporting role in national, State, and local civil defense, (2) labor and the postal worker in civil defense, and (3) labor's supporting role in State, county, and local civil defense. At the end of fiscal year 1965, 2,100 labor representatives had registered to attend these courses during the first quarter of fiscal year 1966.

Examples of free manpower and technical skill furnished by labor organizations included a joint labor-management effort in Kentucky that resulted in

moving 100,000 pounds of supplies into shelters, an operation that would otherwise have cost an estimated \$32,000. By similar effort, a 4-ton electric generator, Federal surplus property donated for use in civil defense, was moved from Florida to Lexington, Ky. AFL-CIO and affiliated unions also provided manpower and equipment for combating flood disasters in nine States.

An AFL-CIO official publication, sent to more than 85,000 of its key group leaders, outlined the history of civil defense legislation and identified legislation for civil defense as a primary AFL-CIO objective. Resolutions adopted by the AFL-CIO, State labor federations and trade unions, and international unions strongly supported civil defense. Examples of labor organizations' co-operation in disseminating information included: (1) Two civil defense articles carried in the AFL-CIO Newsletter and reprinted in many of the 600 local and State publications, (2) use of OCD exhibits shown to more than 253,000 people at the AFL-CIO union-industry show, (3) distribution of more than 288,000 civil defense pamphlets and booklets, and (4) provision of membership mailing lists to the OCD by the International Labor Press Association of America, representing 432 labor papers.



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Director of Civil Defense.

Annual Report

of the

SECRETARY OF THE NAVY

July 1, 1964, to June 30, 1965

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I. Introduction

Fiscal year 1965 was significant in the history of the Navy and Marine Corps. It was an unusually active year, highlighted by combat operations in scenes that varied from the waters of the Caribbean to the coasts of South Vietnam; in each of these areas actions occurred without a declaration of hostilities.

The greater challenge was in the far Pacific. For the first time in years, the Navy was challenged on the high seas and Tonkin Gulf was the incident which marked a change in naval operations. As a result of this attack, naval forces moved from a position of alert readiness in the South China Sea to one of active support in the cause of the Republic of Vietnam.

This support included carrier-based airstrikes, offshore patrol, naval bombardment, and the projection of U.S. forces into hostile areas by amphibious assault operations. Although some of our newer techniques and weapon systems were employed, the character of the operations were, for the most part, accomplished in the conventional fashions of World War II and the Korean war. Naval aviation and the Marine Corps bore the brunt of these actions, ably supported, of course, by other fleet units and the entire Naval Establishment.

Regrettably, there were casualties in these operations. At the end of the fiscal year, total casualties for the Navy and Marine Corps amounted to 286. Of these, 63 were killed in action or are missing and presumed dead. In recognition of valor and service in the highest traditions, the Department of the Navy approved an unprecedented number of awards for performance in these undeclared hostilities.

Simultaneously, the Department took progressive steps toward better management, and continued to support other high priority projects. It increased its potential for general war, completed long-range plans for modernization, carried on intensive efforts to improve its antisubmarine warfare (ASW) and anti-air warfare (AAW) capabilities, supported the space program, and improved general living and working conditions for its personnel.

In all of the above enterprises, and in others as well, the Department faced budgetary problems. As costs for time-proven capabilities increased, and those for new developments skyrocketed, the Navy and

Marine Corps turned more and more to over-all analyses of effectiveness and costs and examined alternatives to find the best solution.

Fiscal year 1965 was an unusual year of service achievement under difficult conditions. The successes and improvements noted in the ensuing pages serve to recognize the fidelity, courage, and determination of the military and civilian personnel who made these achievements possible.

II. Programs and Expenditures

Programs

Department of the Navy programs for fiscal year 1965 totaled \$15.1 billion in direct obligational authority. Of this amount, \$13.7 billion, or 90.6 percent, was concentrated in three programs, General Purpose Forces, General Support, and Research and Development. Program allocations, together with comparative figures for fiscal years 1964 and 1963, are shown below.

TOTAL DIRECT OBLIGATIONAL AUTHORITY

(In Millions of Dollars)

	1965		1964		1963	
	Amount	Percent	Amount	Percent	Amount	Percent
Strategic Retaliatory Forces.....	911.7	6.0	1,763.4	11.9	1,921.2	12.7
Continental Air and Missile Defense Forces.....	66.8	.4	193.0	1.3	133.0	.9
General Purpose Forces.....	9,421.8	62.5	8,470.5	57.1	8,588.1	56.9
Airlift and Sealift Forces.....	53.6	.4	35.3	.2	51.8	.3
Reserve and Guard Forces.....	398.4	2.6	371.7	2.5	352.8	2.3
Research and Development.....	1,097.9	7.3	1,095.6	7.4	1,097.2	7.3
General Support.....	3,136.9	20.8	2,897.7	19.6	2,954.8	19.6
Total.....	15,087.1	100.0	14,827.2	100.0	15,098.9	100.0

Expenditures

Expenditures in fiscal year 1965, which totaled \$13.4 billion, are shown in the table below, with comparative figures for 1964 and 1963.

EXPENDITURES BY FUNCTIONAL TITLE

(In Millions of Dollars)

	1965		1964		1963	
	Amount	Percent	Amount	Percent	Amount	Percent
Military Personnel.....	4, 035	30. 1	3, 833. 4	26. 4	3, 486	24. 9
Operation and Maintenance....	3, 355	25. 1	3, 071. 0	21. 2	3, 058	21. 8
Research, Development, Test and Evaluation.....	1, 303	9. 7	1, 577. 8	10. 9	1, 429	10. 2
Major Procurement.....	4, 934	36. 9	6, 042. 2	41. 6	6, 581	47. 0
Military Construction.....	252	1. 9	190. 3	1. 3	196	1. 4
Revolving and Management Funds.....	-493	-3. 7	-194. 7	-1. 4	-745	-5. 3
Total.....	13, 386	100. 0	14, 520. 0	100. 0	14, 005	100. 0

Operation and maintenance costs plus military pay accounted for more than half of the expenditures. Research, development, test, and evaluation expenditures were concentrated primarily on aircraft, missiles, ships, and small craft; equipment related to these major end items; and basic research in the field of military science. Remaining expenditures were largely for the acquisition of new assets such as ships, aircraft, missiles, and major construction.

The Revolving Fund transactions for the year reflect the operations of the Navy and Marine Corps Stock Fund, the Navy Industrial Fund, and the Navy Management Fund. The negative amount is primarily due to orders and related cash payments received by the Navy Industrial Fund in excess of expenditures. A large volume of orders resulted from the supplemental appropriation received late in fiscal year 1965 and from reprogramming of funds to support Southeast Asia operations.

III. Navy and Marine Corps Operations

Navy and Marine Corps operations for the past year were dominated by requirements in Southeast Asia. The situation there expanded from one of alert readiness to the equivalent of a wartime operation, with an impact that was felt throughout the Naval Establishment. Both the Atlantic and Pacific Fleets provided additional men and ships to the Western Pacific. At the same time, the Atlantic Fleet had to support its NATO commitments and maintain over-all fleet readiness to meet contingency operations such as the Dominican Republic crisis.

The Navy and Marine Corps once again demonstrated quick, controlled response to contingencies and the staying strength of seapower. The operations, exercises, and programs hereafter described are not all-inclusive, but are representative of the wide range of activities of the Navy and Marine Corps.

Southeast Asia

In July 1964, Navy activities in the Western Pacific centered on reconnaissance and readiness for unexpected emergencies. On August 2, however, small craft attacked the destroyer *Maddox* in Tonkin Gulf, thereby setting off a series of events which led to much more active Navy and Marine participation in support of the Republic of Vietnam (RVN). Responsive air strikes were ordered in August, and later in February 1965, after Viet Cong attacks against Americans at Bien Hoa, Saigon, and Pleiku. These air strikes were strictly controlled and were directed at military targets. In May, carrier aircraft began to provide close air support for RVN forces in South Vietnam.

By the end of the year, Navy and Marine forces were increased significantly. Approximately 80,000 Navy men, afloat in some 140 ships of the Pacific Fleet, were supporting military operations in Southeast Asia. Five attack aircraft carriers, at least three of which were positioned on-the-line off Vietnam, cruised in the South Pacific. These mobile, self-contained airbases provided roughly half of the air strikes against North Vietnam and furnished air support south of the 17th parallel.

Cruisers, destroyers, and patrol aircraft teamed up with Coast Guard vessels and Vietnamese naval forces to police the 1,100 miles of sea approaches to the Republic of Vietnam against infiltration.

Destroyer and cruiser gunfire in support of Marine amphibious landings broke up Viet Cong concentrations and foiled enemy attacks at crucial moments.

Naval support ashore increased throughout the year. The Navy Headquarters Support Activity in Saigon provided billeting, hospital and clinic services, operated the port terminal office, and performed many essential housekeeping functions. Seabees, about 2,000 strong, provided technical skills needed to build airfields and support facilities in the jungle environment. Over 1,400 Navy doctors and hospital corpsmen were in the area. Many were attached with combat troops of the Marine Corps, and others served as members of Civic Action Medical Teams, which cared for villagers and peasants in the field.

Navy men acted as advisers to Vietnam River Assault Groups and ran patrols in the interior waterways. Just off the coast with the inshore patrol, other Navy men assisted the 500-ship Junk Force of the Vietnam Navy.

Fleet Marine Force participation ashore in Vietnam increased from a small helicopter transport unit of about 500 personnel to a Marine Expeditionary Force of 19,530 Marine and Navy personnel. This air/ground team protected vital air and logistic installations, expanding areas of operation as necessary for security.

At the close of the fiscal year, Marine forces were in the Hue-Phu Bai, Da Nang, Chu Lai, and Qui Nhon areas. These forces progressed from an initial defense, through a patrolling search-and-destroy phase, to regimental-size operations devoted to clearing and holding significant areas. In these operations, Marine forces killed or captured 515 Viet Cong and took 280 suspects into custody.

Dominican Republic

In the Dominican Republic, an armed coup on April 24, 1965, brought about a deteriorating situation. Street fighting broke out in Santo Domingo, causing many deaths and property damage. When danger to U.S. citizens and other foreign nationals became apparent, the Navy ready amphibious squadron with *Bower* began an evacuation. On the 28th, the American Ambassador requested additional Marine protection for the evacuation area. A small force was provided immediately and these men were reinforced in the ensuing days of unrest. At the height of United States participation in the crisis, forces ashore included 6,000 Marines as well as units from U.S. Army airborne divisions. Approximately 38 ships of the Atlantic Fleet were used in support and surveillance operations.

During their tenure in the Dominican Republic, Marine forces established an International Security Zone by linking up with U.S. Army

units and maintained a corridor around the rebel-dominated section of Santo Domingo. Despite sniping and sporadic fire fighting, U.S. troops ashore succeeded in moving over 4,000 native men, women, and children to safety and evacuated approximately 2,400 U.S. citizens.

U.S. forces were replaced by an Organization of American States peace-keeping force in early June.

Space

The Navy's contribution to space exploration in fiscal year 1965 was primarily one of recovery, in a manner similar to the support given Project MERCURY in previous years. Astronaut recovery operations were completed without incident. During these operations, naval ships and aircraft were on station in the Atlantic and the Pacific. The greater effort was centered in the Atlantic for primary recovery, but contingency forces were also stationed north of Hawaii and east of Okinawa.

In addition, the Navy made notable contributions to aerospace medicine, bioastronautics, communications, astronaut training, and hardware development.

In order to meet future space recovery requirements, which are scheduled to increase, the Navy augmented the staffs of its recovery forces and assigned a flag officer as the Chief of Naval Operations representative for Manned Space Flight Support. This flag officer, who is based at Norfolk, Va., also acts as Atlantic Recovery Force Commander and has additional duty as Commander, Cruiser Destroyer Flotilla Four.

Nuclear Task Force Around-the-World Cruise

In a demonstration of speed, endurance, and independence of shore support, the Navy's Nuclear Task Force conducted an around-the-world cruise from August to October 1964. Beginning at Gibraltar on July 31 after completing a normal Sixth Fleet deployment, *Enterprise*, *Long Beach*, and *Bainbridge* sailed east.

The cruise route, down the West Coast of Africa, through the Indian Ocean, around Australia, across the South Pacific, and up the east coast of South America to the U.S. eastern seaboard, covered 30,500 miles. When the Task Force arrived at Norfolk on October 3, the ships had maintained an average speed of advance of 22 knots.

Goodwill visits were made by all ships to Karachi, Pakistan, and Rio de Janeiro, Brazil. *Long Beach* and *Bainbridge* visited Wellington, New Zealand. Individual port visits to Australia were made to Perth by *Bainbridge*, Melbourne by *Long Beach*, and Sidney by *Enterprise*. During the cruise, the Task Force conducted 16 underway dem-

onstrations for foreign dignitaries, and held two at-sea Navy-to-Navy exchange visits.

Significant Exercises

Major exercises of fiscal year 1965 covered a broad range of amphibious and maritime operations with emphasis on strategic mobility and counterinsurgency capabilities. Some were conducted on an in-Service basis, while others were carried out jointly with forces of friendly nations under the auspices of treaty organizations.

STEEL PIKE

The largest amphibious operation ever conducted by the U.S. Navy in peacetime, STEEL PIKE featured an amphibious lift of 20,000 Marines of the U.S. Second Marine Expeditionary Force augmented by 2,000 Spanish Marines and units of the Spanish Navy. The combined forces conducted amphibious assaults at Almeria and Huelva, Spain, on October 26, 1964.

The troops and equipment were lifted and supported by Navy, Military Sea Transportation Service (MSTS), and Merchant Marine ships. Aircraft operating from Sixth Fleet carriers, from Rota, and from a tactical airfield established at Almeria gave added realism to the operation. Medical readiness support included the deployment of a Surgical Team and a Casualty Evacuation Support Team. The exercise demonstrated the ability of the Navy and Marine Corps to move large quantities of men and material to European shores for combat operations, and also furthered Spanish-United States relations through joint training of their military Services.

TEAM WORK

This large-scale NATO maritime exercise was conducted in the North Sea and the Bay of Biscay in September 1964. NATO exercises of this scale are normally conducted every third year. Fleet units from eight countries participated, with the United States, the United Kingdom, and The Netherlands providing the major portion of forces totaling about 130 ships.

The exercise featured transit of a striking force through submarine opposition to conduct simulated air strikes on land targets in northern Europe.

SILVER LANCE

Conducted by the Commander in Chief, U.S. Pacific Fleet, in February and March 1965, SILVER LANCE was the largest exercise in the Pacific since the end of World War II. It involved 68,000 men, nearly 600 aircraft, and 95 ships. It covered the warfare spectrum

from insurgency operations through successive escalations to general war.

The first phase featured a landing on the coast of California for the evacuation of American nationals and the restoration of law and order in a fictitious country with wide unrest. As violence increased, forces entered the second phase, which involved an amphibious and helicopter assault to counter overt aggression by a powerful enemy.

GRASS ROOTS

This exercise was a counterinsurgency situation staged on the reservation at Camp Pickett, Va., in September 1964. Approximately 5,200 Marines simulated an amphibious landing at Camp Lejeune, N.C., after which a Marine Expeditionary Brigade was flown and motored to the problem area. The operation included counterinsurgency tactics, civil affairs, and military government in prepared "native" villages.

HARD NOSE

Conducted in October 1964 in the Camp Pendleton, Calif., area, Exercise HARD NOSE employed a Marine Expeditionary Brigade in an amphibious movement to assist a friendly nation in resisting insurgency.

People-to-People Programs

In their efforts to project a proper image of the United States, the Navy and Marine Corps continued their programs to foster better relations with people around the world. These programs range from providing indoctrinational briefings before ship visits to restoring buildings and roads, rendering first aid, and distributing food and clothing.

Project HANDCLASP, the major part of this effort, is a self-supporting program which transports for use overseas material donated by the American people. Stored in space available in Navy ships, such materials as clothing, building supplies, paint, medicine, soap, books, and school supplies are shipped to fleet and oversea units to enable them to carry out a more effective community relations program.

The following specific examples of people-to-people projects undertaken demonstrate the warmth, ingenuity, and imagination of the U.S. serviceman:

- Refurbishment of hospitals and schools in the Far East;
- Digging wells and repairing roads in the Republic of Vietnam;
- Ship visits and entertainment for underprivileged children around the world;
- First aid and assistance to refugees in Vietnam; and
- Flood relief.

IV. Seapower Capabilities

Naval Warfare Capabilities

Strategic Warfare

Submarine-Launched Ballistic Missile Program—The funded program through fiscal year 1965 provided for 41 Fleet Ballistic Missile Submarines (SSBN) and five tenders.

Operational Status—The past year marked significant improvement in operations of ballistic missile submarines. A total of 29 SSBNs had attained deployable status since the beginning of the Fleet Ballistic Missile (FBM) program. Of these, 25 remained deployable for operational patrols, 3 were in overhaul, and 1 was preparing for overhaul.

On September 28, *Daniel Webster* departed for patrol as the first SSBN to be equipped with the improved POLARIS A-3 missile. It was followed by 10 more, bringing the total number of A-3 missile-equipped submarines to 11.

On December 25, *Daniel Boone* became the first SSBN to go on patrol in the Pacific. By the end of the fiscal year, four SSBNs (all equipped with A-3 missiles) were deployed in the Pacific.

Shipbuilding and Overhauls—Eight SSBNs were delivered and deployed with the Fleet during the fiscal year. *Nathanael Greene*, delivered on December 23, 1964, was the final ship of the original 1-per-month program. This program, consisting of 18 ships, began in June 1963, and was completed within 1 month of the original time frame. Various ships had to be rescheduled along the way, principally to install the submarine safety package.

At the end of the fiscal year, 12 submarines of the original 41 remained under construction. One FBM submarine tender, *Simon Lake*, was delivered, and construction of the fifth FBM submarine tender, *Canopus*, was in progress.

George Washington, the first FBM submarine to be deployed, continued in overhaul during the fiscal year. After 17 successful patrols, *Patrick Henry* began overhaul in January, and after 16 successful patrols, *Robert E. Lee* began overhaul in February. Each will be refueled and retrofitted to provide the capability to fire the 2,500-nautical mile POLARIS A-3 missile.

Development and Demonstration—Development of the Navy Satellite Navigation System and other aspects of the FBM Weapon System continued. While the Navy Satellite Navigation System has not been declared operational, some operational use was being made of available satellites by submarines on patrol.

Tests of the complete weapon system in combination with the POLARIS A-2 and A-3 missiles were carried on at Cape Kennedy. These tests, which were conducted prior to the deployment of each SSBN, further demonstrated the compatibility of the POLARIS A-2 and A-3 missiles with counterparts of the submarine subsystems—navigation, fire control, and launcher.

The last of the A-2 firings for newly constructed SSBNs in support of these demonstration and shakedown operations was conducted successfully by *John Adams* in July 1964. Of a total of 43 firings through the course of this program, 38 were successful.

By the end of the fiscal year, the record of A-3 firings, including 4 from *Daniel Webster* in fiscal year 1964, was 26 successes in 27 tests. Moreover, on March 15, 1965, a successful shot was conducted from the surface by the *Nathanael Greene*.

The contract definition phase for the new strategic weapon system, POSEIDON (C-3), began in April.

Carrier Strike Warfare

Carrier Program—The approved long-range attack carrier (CVA) program provides a force of 15 CVAs. The CVA force at the end of fiscal year 1965 was temporarily increased to 16 to provide an additional carrier for use in Southeast Asia, and consisted of 1 *Enterprise*-, 7 *Forrestal*-, 3 *Midway*-, and 5 *Hancock*-class carriers.

Two carriers were deployed with the Sixth Fleet in the Mediterranean throughout the year. In the Western Pacific, three CVAs were maintained with the Seventh Fleet until March 29; four until June 11; and by the end of the fiscal year, five CVAs were operating in the South China Sea. The remaining carriers were attached to the First and Second Fleets undergoing training, conducting readiness exercises, or in overhaul.

The Marine Corps continued periodic deployment of units aboard CVAs. A Marine all-weather fighter squadron was embarked on *Oriskany* in the Western Pacific in April 1965 and remained aboard for a routine deployment. An attack squadron was deployed as part of the carrier air wing with the Sixth Fleet in the Mediterranean aboard the *Forrestal* from July 1964 to March 1965. A four-plane A-4C detachment for the Western Pacific was deployed on *Yorktown* from October 1964 to June 1965; and a Marine composite reconnaissance squadron continued to provide a detachment of aircraft to the Seventh Fleet.

Modernization—Four CVAs and five CVSs were given regular overhauls during the year. Introduction of the Naval Tactical Data System in the fleet was extended with equipments in *Kitty Hawk* and *Constellation*. These ships also received the Integrated Operational Intelligence System and the TERRIER missile. *Enterprise's* nuclear powerplant was recored for the first time since her commissioning in 1961. Insofar as funds permitted, ships undergoing overhaul and rehabilitation were improved, modernized, and made more habitable and comfortable for extended operations. Major alterations to *Intrepid* and *Hornet* included improved radars, combat information centers, and the installation of sonar.

The CVA *America* was commissioned in January, and a contract was awarded for construction of *John F. Kennedy* (CVA-67).

Carrier Aircraft Programs—Modernization and improvement of carrier aircraft moved ahead. The status of major programs is summarized below by model.

F-111B (TFX)—An over-all program extension, caused by problems associated with the PHOENIX missile system and weight-growth of the F-111B, will delay fleet introduction by approximately 1 year.

F-4J Phantom II—Procurement of these all-weather interceptor/attack aircraft proceeded according to schedule, with delivery expected in fiscal year 1966.

A-7A Corsair II—Light jet attack aircraft under this program are scheduled for delivery to fleet units in fiscal year 1967.

A-6A Intruder—Delivery of seven of these medium attack aircraft was behind schedule at the end of the fiscal year, but the over-all deployment schedule has been accelerated. The first squadron of A-6A's deployed to the Western Pacific on *Independence* in May 1965.

RA-5C Vigilante—Production and conversion began on these reconnaissance aircraft primarily to update the airframe and sensors.

E-2A Hawkeye—The delivery schedule of these early-warning aircraft was altered to improve reliability and operational capability.

Antisubmarine Warfare (ASW)

As reported last year, the steady growth in military potential of the submarine continues to focus increased Navy attention on antisubmarine warfare. The ASW program embraces a large number of systems to detect, locate, classify, and destroy submarines. Included in these systems are surface, subsurface, and air-based detection and locating devices, as well as fire control and explosive ordnance.

Surface Ship Antisubmarine Systems—The Navy's primary detection devices—AN/SQS-23 and 26 sonars—remained the backbone of shipboard detection capability. The original AN/SQS-23 program

was virtually completed; however, a major retrofit program was undertaken to improve performance and reliability. Installation of the longer range AN/SQS-26 continued in certain fleet and new construction destroyer hulls. In anticipation of greater numbers of operational SQS-26 equipments, the training program for operators and maintenance men was intensified. Newer and more complex long-range sonars installed in new escort ships, as well as other experimental sonars, were tested and evaluated.

Standoff weapon delivery systems, ASROC and DASH, proven effective through testing and fleet operations, appeared in greater numbers in both the Atlantic and Pacific Fleets. A development program to double the range of the present ASROC was established. Introduction of the drone for DASH-configured ships continued, although it was somewhat slower than originally scheduled.

Introduction of the MK-46 antisubmarine torpedo, a faster, deeper running torpedo with improved detection capability, continued throughout the Fleet.

Aircraft Antisubmarine Weapon Systems—New aircraft with improved weapon systems superseded older models and enhanced the capabilities of antisubmarine aircraft squadrons. In patrol units, the P-3A Orion land-based patrol plane provided extended range and more effective sensor equipment. The carrier-based S-2E Tracker featured an improved navigational system and detection device. ASW helicopter performance was markedly improved with a new airborne sonar in the SH-3A Sea King helicopter.

A total of four CVS squadrons received the S-2E Tracker, and four patrol squadrons shifted from P-2/P-5 Neptune and Marlin aircraft to the new P-3A Orion. Two ASW helicopter squadrons were outfitted with the SH-3A Sea King helicopter.

Submarine Antisubmarine Warfare—Submarine ASW capability improved with the commissioning of *Haddo* and *Tinosa*, two new nuclear attack submarines of the *Permit* class. Another, the *Guardfish*, was launched, and contracts were let for seven more.

This type of submarine has been subjected to exhaustive realistic tests under conditions that closely duplicate its ASW wartime mission. The results of these tests have been gratifying and indicate that the ASW effectiveness of these submarines is many times greater than that of their conventional and nuclear predecessors. Further improvements are expected through improved performance.

Exercise Evaluation and Data Analysis—The Navy continued its effort to improve analysis and evaluation of all facets of the ASW problem. Work and plans for instrumented three-dimensional tactical ranges proceeded. ASW analysis teams were formed on the staff of each of the Fleet ASW and submarine-type commanders. These com-

manders collected raw ASW data from both freeplay and controlled-type exercises for analysis and development of summarized data for ASW command and control. The Fleet ASW Data Analysis Program was established primarily to prepare an analytical data base for future studies.

ASW Requirements for Inshore Areas—ASW requirements for inshore areas center around harbor defense, strait surveillance, and defense of amphibious assault areas against all types of undersea attack. This type of "shallow water" defense requires specially trained mobile units. Such teams have been formed, trained, and made available for rapid deployment at home or overseas.

Mine Warfare—The stockpile of new ASW mines increased through planned procurement for the past year. Proficiency in minelaying advanced as submarines and aircraft trained in practical exercises. An invitation to participate was extended to the U.S. Air Force, which has a collateral minelaying mission, and a preliminary fit testing was made. Mine countermeasures systems were revised and improved, and new minehunting sonars were introduced to certain fleet units.

Antiair Warfare (AAW)

Missile ship strength advanced with the commissioning of two TERRIER frigates (DLGs) and two TARTAR destroyers (DDGs). Continued progress was assured through the adoption of a comprehensive 5-year program to improve over-all effectiveness of 27 cruisers and frigates. This improvement program will begin in fiscal year 1966. The approved missile ship new construction program proceeded, although some units were delayed as a result of labor union strikes.

Extensive fleet tests conducted during the year brought renewed confidence in missile system improvement and tactics. At the same time, however, the high turnover rate of technical personnel in the program remained a problem. This has been somewhat alleviated by a plan in which over 1,100 technicians have obligated themselves for 6 years in return for specialized training.

An extensive analytic work, research, and testing program produced better definition of new surface missile systems. Chief among these was a validation test of an engineering model of a point defense surface missile system. Work continued on an advanced surface missile system, which completed preproject definition by the end of the year. Meanwhile, a follow-on TARTAR missile system for installation in new construction ships was under engineering development.

The air-to-air portion of the AAW program continued as scheduled through fiscal year 1965. As a result, the number of F-4 Phantom squadrons in Navy/Marine Corps aviation increased from 19 to 26. Because of the increased effectiveness of this aircraft, the Navy reduced

the number of planes per squadron from 14 to 12, and the Marine Corps reduced from 18 to 15. All Marine air wings and carrier air wings except those aboard *Hancock*-class carriers will be fully equipped with F-4 aircraft by fiscal year 1968. F-8 Crusader aircraft squadrons will be retained to operate with *Hancock*-class carriers as long as that class, with its reduced capability to handle high-performance aircraft, remains in an attack carrier (CVA) status.

Increased activity in Southeast Asia brought about the following developments in the AAW program:

- a. Marine AAW elements, including fighter aircraft, surface-to-air missile units, and air control units were deployed to the Far East.
- b. Plans were made for a supplemental buy of AAW aircraft and for procurement of additional SPARROW air-to-air missiles.
- c. Increased emphasis was placed on the evaluation of tactics and weapons.

Amphibious Assault Warfare

Amphibious ship strength was improved with the addition of three new ships and the inactivation of one. Attack transport *Noble* was inactivated, while amphibious assault ship *Guam* and amphibious transports dock *Austin* and *Ogden* were commissioned. Two heavy cruisers capable of gunfire support were retained in the active fleet in lieu of inactivation, and activation of four rocket-firing ships in the Reserve Fleet commenced near the end of the fiscal year.

Amphibious warfare combat readiness was maintained at a high level by numerous amphibious exercises and some actual landings under combat conditions in Southeast Asia and the Dominican Republic. These exercises and events revealed certain shortages in amphibious shipping, which generated a program to overcome the deficit.

Naval gunfire support of friendly ground forces along the coast of South Vietnam commenced in May, and requests for it increased by the end of the fiscal year.

Counter Sea Infiltration

The traditional Navy task of protecting coastlines from infiltration by sea was revived and intensified in Southeast Asia. Operating with naval forces of the Republic of Vietnam, naval patrol aircraft and a number of Navy and Coast Guard ships were on patrol off the southern coast of Vietnam by the end of the year. This extensive project levied an unexpected requirement for small shallow draft ships with endurance. To meet this demand, the Navy canceled scheduled inactivations of DEs, and used destroyers, escorts, minecraft, and some Coast Guard ships to maintain the patrol. Some of the ships now committed to this task will probably be replaced by PGM and SWIFT craft presently under construction.

During the latter part of the fiscal year, plans were completed for the transfer of operational control of the patrol forces to the staff of USMACV (U.S. Military Assistance Command, Vietnam).

During the past year, a drive was begun to increase unconventional warfare forces by 50 percent and to provide more qualified personnel for counterinsurgency. At the close of the year, there were 35 Mobile Training Teams deployed to 12 different countries. Also, there were 12 Seabee teams employed in construction and civilian projects in Southeast Asia, concentrating on airfield construction, road building, well digging, and training indigenous people in related construction skills.

Naval Resources

Manpower

Military—Navy and Marine corps personnel summaries for fiscal year 1965, excluding reimbursables, are shown below:

	Programed strength	End-year strength
Navy-----	674, 116	671, 009
Marine Corps-----	191, 069	190, 187
Total-----	865, 185	861, 196

At the beginning of the fiscal year, Navy had an approved end-year strength of 677,815. However, this was reduced to the figure shown above as a result of reprogramming—principally the phaseout of the DEW line.

While personnel retention remained the major personnel problem in the Navy, manpower requirements to meet the Southeast Asia crisis were extremely demanding. A call for volunteers to serve in Vietnam was issued in April, and a heartening response was received from over 17,000. Increasing requirements in the area necessitated a reduction of manning levels in the Shore Establishment and the Atlantic Fleet. At the end of the fiscal year, the Navy requested authority to extend enlistments for a period of 4 months.

With the exception of physicians who were subject to draft, Navy and Marine Corps personnel requirements for the year were met with voluntary recruiting.

The quality of the average Navy recruit dropped somewhat, as indicated by an increase in Group IV (lowest acceptable group) and a decrease in the number of trainables (those with capacity to absorb technical training). Officer procurement in both the Navy and Marine Corps was very good. The Navy petty officer ratio dropped to 54.8

percent and the noncommissioned officer ratio in the Marine Corps was 39.5 percent. Both of these ratios are a little less than the desired figures and, therefore, represent a shortage of supervisors.

Training in important aviation and submarine programs continued to receive priority, siphoning off a large portion of talented personnel in the Navy. Facilities for the second increment of construction at the FBM Submarine Training Center at Charleston, S.C., were nearly completed, and the Fleet Submarine Training Facility at Pearl Harbor became operational. Military construction for nuclear training buildings, and installation of submarine fire control laboratories at New London, Conn., and Pearl Harbor began.

Considerable attention was given to the over-all problem of retention throughout the Navy. Led by a special board headed by the Secretary, the Navy undertook an exhaustive study of the problem. The interest manifested by this effort caused a noticeable increase in general morale, and more beneficial results are expected when the final Retention Board recommendations are implemented.

A specific example to improve officer retention and to alleviate a critical shortage was the "spot" promotion program which was implemented in April. Limited to junior officer personnel serving in operational units, the program permits the promotion of selected unrestricted line officers (lieutenant, junior grade, and lieutenant commander) serving afloat in billets written for a higher rank. For example, a lieutenant, junior grade, successfully serving as a department head on a destroyer, can be promoted to the rank of lieutenant and draw commensurate pay. At the end of the year, the following spot promotions had been approved: lieutenant, junior grade, to lieutenant, 125; lieutenant to lieutenant commander, 59; and lieutenant commander to commander, 8.

Personnel management continued to improve through the extended use of automatic data processing equipment and the adoption of more modern techniques.

Reserve forces of both the Navy and Marine Corps were kept effective and ready for emergencies. Total numbers of the Ready Reserve declined slightly, primarily through a stringent screening process which was initiated in January.

Naval Reserve forces were strengthened by the replacement of six DEs in the ASW component by four DDs from the active fleet. The Naval Air Reserve received additional C-118B Liftmaster transport aircraft and continued the transition to jet fighter and attack aircraft. Naval Reserve training ships and reserve aircraft squadrons participated periodically in fleet exercises in an impressive manner. During May and June, Naval Air Reserve transport squadrons made 11 round-

trip flights to Southeast Asia and 30 flights to Hawaii, lifting priority cargo and personnel.

Civilian—The Navy continued to seek placement for employees affected by base closures. Some 150,000 jobs at 669 bases are involved. A freeze on permanent wage board appointments in November 1964 resulted in approximately 8,000 stockpiled Navy vacancies by June 1965. The automated referral system began operation in March as a supplement to local and internal Navy placement efforts. Pay retention for wage board employees was authorized April 1 and brought the Navy into line with Army and Air Force. Activities affected by base closures were visited by headquarters officials in November and December 1964. All personnel officials were instructed in the new outplacement policies and automated procedures.

Efforts to fulfill job guarantee offers and to find employment for employees affected by the closures were as follows:

Major uncompleted actions	Employees at closure announcement	As of June 1965
New York Naval Shipyard.....	9, 500	5, 850
Navy Training Device Center, Port Washington, N.Y.....	750	735
NOP, Macon, Ga.....	950	640
NAF, Litchfield Park, Ariz.....	635	450
Supply Annex, Stockton, Calif.....	280	1
Portsmouth Naval Shipyard, N.H.....	7, 000	6, 850
NAD, Hastings, Nebr.....	447	180

In implementing Executive Order 10988, the Navy granted employee organizations exclusive recognition in approximately 190 units employing about 132,000 employees and formal recognition in approximately 140 units employing about 76,000 employees. In addition, about 365 employee organizations were granted informal recognition. At the end of fiscal year 1965, about 100 exclusive recognition agreements had been negotiated.

Navy labor-management relations have been aided and improved through seminars for key management officials. These Navy-sponsored meetings are attended by authorities in the labor management field from industry, government, labor, and the academic community.

Basic policies fixing minimum standards for personnel programs of civilian nonappropriated fund activities were issued. The policies require heads of activities to establish programs governing the terms and conditions of employment and the employment rights and privileges of employees of these nonappropriated fund activities.

The Navy continued to issue schedules of wages for ungraded Navy workers when significant changes occurred in private industry wage levels, or at approximately annual intervals. The generally good acceptance of Navy wage practices by unions and employees affected appears to have contributed substantially to the morale of ungraded Navy workers. In the United States, 135 revised schedules were issued for 134 areas affecting 171,478 employees. The average increase was \$0.079 per hour or 2.8 percent. One new area was established and 28 area schedules were canceled.

Civilian personnel employed by the Department of the Navy during fiscal year 1965 are compared below with similar figures for 1964.

GEOGRAPHICAL DISTRIBUTION OF CIVILIAN PERSONNEL

	1965	1964	
United States.....	309, 296	309, 435	-139
Territories and Possessions.....	5, 571	5, 605	-34
Foreign Countries.....	18, 404	17, 638	+766
Total.....	333, 271	332, 678	+593

Materiel

In this report *materiel* is considered to be the equipment, apparatus, and supplies used by the Navy and Marine Corps. The combined effect of combat operations and incremental modernization of forces tended to deplete materiel and complicate its replacement. As a consequence, rigorous reprogramming and procurement policies were required throughout the year.

Ship Overhauls and Alterations—Fiscal year 1965 marked the second year of operation under an elongated overhaul cycle with omission of interim overhaul. Since only limited experience was acquired during fiscal years 1964 and 1965, it is still too early to determine whether the lengthening of overhaul cycles to this extent permits the Fleet to be effectively maintained and modernized. Substantial increases were required in the Restricted Availability Program to fund industrial repairs that otherwise would have been accomplished during regular or interim overhaul. Fleet modernization alterations were curtailed by funding limitations, particularly in installation of new equipment and improved habitability.

Supplies and Equipage—Allowance deficiencies and depletion of stock levels, which were reported last year, continued to be a cause for concern. Increased operational requirements drew heavily on existing

stocks. The crises in Southeast Asia and the Dominican Republic required reprogramming of \$23.1 million of Navy funds. Certain "protected" stocks had to be released to Marine Corps units committed simultaneously to these Atlantic and Pacific operations. As a result, the Marine Corps undertook a study to purify its code plan stocks and concentrated on obtaining sufficient assets for uncommitted elements of the Fleet Marine Forces.

Maintenance Management (3M Program)—Installation of the Standard Maintenance and Material Management System continued. The system is now either installed or partially installed in 400 ships and has been accepted enthusiastically by Fleet personnel. A similar system is in effect for all aircraft models.

To extend the usefulness and to support the maintenance management system installed in Fleet units, the Navy developed a complementary data collection and analysis system. Based on an Office of Naval Research survey and shipboard tryouts, this new system has been evaluated in both Fleets and 50 aircraft squadrons. A plan for its expansion during the next fiscal year was approved. It is anticipated that this information system will provide all levels of management with better data on cost and materials used as well as an indication of equipment reliability and manpower utilization.

Fleet Logistic Support—The Navy proceeded with its Logistic Support Improvement Plan reported last year. A new development during the year occurred in the establishment of the Navy Support Activity at Danang, South Vietnam. To expedite its establishment and to reduce costs, components from pre-positioned war reserve stocks were used. These included such items as lighterage, airfield matting, medical facilities, and pontoon causeways.

A Navy Mobile Construction Battalion constructed an expeditionary airfield at Chu Lai in record time. Although the airfield was not completely finished, only 21 days elapsed from the time the equipment was landed ashore until the first aircraft landed and took off.

Research and Development

Congressional appropriations for Navy research, development, test, and evaluation (RDT&E) in fiscal year 1965 amounted to \$1.38 billion. With these funds, the Navy pursued its own RDT&E interests and, at the same time, monitored related efforts of industry and the other armed Services. Only those projects sponsored by the Navy and Marine Corps are discussed below.

Undersea Warfare—To date, among a variety of techniques explored, acoustic systems have shown greatest promise for submarine detection and classification. The trend continued toward bow-mounted sonars with bottom bounce and convergence zone capability. Weapons development centered on improved torpedoes and an extended range

ASROC (Antisubmarine Rocket). A number of improvements were made in airborne submarine search and detection capabilities. An example is the Avionics A-NEW system for airborne tactical control.

In Sealab I, man's free swimming and working capability at 190-foot depths was tested over an 11-day period. Planned experiments in the Sealab program in future years will continue to probe man's physiological limit in prolonged and deeper habitations on the ocean floor.

Oceanographical surveys and an environmental prediction program aroused considerable Navy interest. Automated analysis and statistical prediction techniques for the latter were completed.

As a follow-on to the improved POLARIS A-3 missile, the POSEIDON weapon system with greater payload and accuracy is under study. In the surface missile family, work was reoriented toward achieving full potential of missiles at hand. Other missile studies were pursued to develop weapon systems with shorter reaction time and a quicker firing rate. The urgent need for self-defense focused increased attention on a point defense capability against air attack. This system will be simple, lightweight, and reliable, with planned installations in all classes of ships. A new concept of gyro suspension resulted in a significant breakthrough in inertial guidance technology for tactical missiles.

Aircraft Programs—In addition to the programs for carrier-based aircraft previously discussed, development proceeded in light armed reconnaissance aircraft and an improved assault transport helicopter for the Marine Corps. A development contract was let for an integrated helicopter system capable of automatic terrain following and high accuracy navigation. A new tail assembly developed for conventional bombs makes possible low altitude drops with minimum concern for bomb fragment damage to the delivering aircraft.

Astronautics—Efforts in this area concentrated on the application of space technology to the fields of communications, navigation, and ocean surveillance. As an example, communications were established to and from certain combatant ships via an active satellite, the SYNCOM. This same satellite, which can replace 30 conventional teletype circuits, has been used by the Naval Weather Service.

Research—The Navy continued its vital program of research and exploratory development, which has made so many significant contributions to improved fleet operations in past years. A few of the more interesting current research projects are discussed below.

Precise Time Standards—In February, the Naval Observatory used a NASA satellite to synchronize clocks in the United States and Japan to one-tenth of a microsecond of time.

Astronomy—During its first year of operation, the Navy reflecting telescope at Flagstaff, Ariz., took over 4,000 valuable photographs of the heavens. Under combined Navy, CalTech, and National Science Foundation sponsorship, a joint examination began on the newly discovered "quasars." These are extremely bright objects with a high energy release which have provoked considerable interest in the scientific community.

Oceanography—Included in this area are studies of the ocean floor, currents, deep submergence techniques, and underwater construction.

Arctic—Numerous projects are conducted annually by colleges and private research institutions at the Arctic Research Laboratory. ARLIS II, the Arctic Research Laboratory Ice Station, a large ice island which was manned for 4 years by 12 to 15 scientists, was abandoned in the spring of 1965. Propelled only by current and winds, this island made a 5,000-mile meandering trip from near Point Barrow, Alaska, to waters off the northwest coast of Iceland.

Materials—A new family of high strength weldable steels, capable of withstanding 130,000 to 150,000 p.s.i. pressures, has been developed and will be tested to determine suitability for submarine hull construction. Basic studies of metal and alloy failures and corrosion resulted in important findings. A Navy laboratory development which may produce significant savings is a new lubrication device for miniature ball bearings. Test data indicates that the life of these bearings can be extended 4 to 12 times.

Miscellaneous—Other interesting projects included studies in electronics, fuels and propellants, biomedicine, and sophisticated training techniques.

Marine Corps—In addition to the light armed reconnaissance aircraft previously mentioned, Marine Corps-sponsored projects include experimental high-speed amphibious support vehicles; a marginal terrain vehicle capable of crossing mud flats, marshes, tundra, etc.; a seismic "intrusion device" which detects movement of men and equipment; lightweight artillery; electronic jammers; and a battlefield radar.

Facilities

Construction—During fiscal year 1965, the value of work put in place was \$375 million, of which \$103 million represented construction for non-Navy agencies, principally the Air Force and NASA.

In Southeast Asia, where the Bureau of Yards and Docks is the single Department of Defense construction agent, responsibility for \$140 million in construction projects was assumed by the Bureau of Yards and Docks during fiscal year 1965. All work in Vietnam is being accomplished under a cost-plus-fixed-fee contract by a joint

venture of four major U.S. contractors. Other construction program projects included: POLARIS support facilities at home and overseas; installation of a desalinization powerplant at Guantanamo Bay, Cuba; and remote communication facilities. Three major naval hospitals were started at Long Beach and Oakland, Calif., and at Jacksonville, Fla. Restoration programs to repair typhoon damage at Guam and earthquake damage at Alaska moved ahead. During the year, 2,020 family housing units were completed, and the rehabilitation of Bancroft Hall at the Naval Academy was finished. New design criteria were developed to improve barracks and BOQs under construction or rehabilitation.

Management, Operations, and Maintenance—At the beginning of the fiscal year, the Chief, Bureau of Yards and Docks, implemented the second and final phase of his responsibility as Single Executive for Maintenance and Operation of Utilities at 500 separate shore activities. Public works functions were consolidated at Great Lakes, Ill., Key West and Jacksonville, Fla., Monterey, Calif., and Sasebo, Japan. Public Works Centers were established at Great Lakes, Ill., Yokosuka, Japan, and Pensacola, Fla.

Cost of telephone service was reduced through the installation of five Centrex systems. In keeping with the President's interest in reduction of water and air pollution, remedial actions were instituted at 138 Navy and Marine Corps installations. Maintenance costs of administrative motor vehicles were reduced from \$0.0378 per mile to \$0.0333 per mile. Projected on an annual basis for some 290 million miles traveled, this represents a saving of \$1.3 million.

Approximately 690 items of transportation equipment, valued at \$3.5 million, were diverted from the replacement program to fill unplanned and unbudgeted requirements in Southeast Asia.

The fuel core of the Navy's nuclear powerplant at McMurdo Station in Antarctica was replaced for the first time.

As a result of improved management practices, savings of more than \$9 million were realized in family housing operations. As an example, the average cost of operation and maintenance of Navy family housing was reduced by \$60 per unit (to \$763.52 per unit). Contract maintenance was used for some family housing. Contractor performance and costs compared favorably with that done by station forces. The occupancy rate of the Navy's 55,000 "adequate" quarters units met the prescribed occupancy standard of 98 percent. Approximately 9,000 "substandard" units were terminated.

Close management of Navy real property resulted in the lease of 180,000 acres of land and 24 million square feet of buildings. This, as well as the harvesting of timber, brought about \$3.6 million government income.

Military Sea Transportation Service (MSTS)

MSTS carried the following amounts of cargo, passengers, and petroleum products in fiscal years 1964 and 1965:

	1965	1964
Cargo lifted..... (M/T thousands) ..	13, 214	13, 426
Passengers lifted..... (thousands) ..	413	435
Petroleum lifted..... (L/T thousands) ..	17, 727	17, 116

The POL lift for 1965 was the highest in MSTS history, requiring 110 nucleus ships, and additional commercial shipping. Thirty-nine ships supported surveys and research projects, missile range instrumentation, Antarctic research, and other scientific projects. Operating costs totaled \$472.6 million, of which \$354.8 million, or 75 cents of each expense dollar, was paid to commercial interests.

The requirements of Southeast Asia caused an increase in MSTS-controlled ships from 181 on January 1 to 215 on June 30.

Operations of special interest during the fiscal year were:

a. Transportation of fresh water to Guantanamo. In 7 months of operation, terminating September 24, 1964, two T-2 tankers completed 64 voyages, delivering 281.7 million gallons of fresh water.

b. Participation in STEEL PIKE, SILVER LANCE, NATO, TEAM WORK, and MERCONVEX exercises and DEEP FREEZE 1965.

c. Replenishment at sea of Seventh Fleet fleet oilers operating in support of Vietnam.

As of June 30, 1965, 11,796 personnel were assigned to MSTS, which was an increase of 975 over the previous year. Approximately, 9,809, or 83 percent, were in afloat staffing. A nucleus fleet of 149 ships was maintained at a high degree of readiness. Maintenance and repairs to ships and the tanker upgrading program cost \$31 million; this was divided among 73 private ship repair firms.

The need for replacement of obsolescent ships continued; 86 percent of the Fleet is World War II construction. Replacement cargo ships should have 60-ton booms capable of serving two holds, large hatch openings, high speed, reefer, and some roll-on/roll-off capability.

Medical and Dental

The hospital ship *Repose* was reactivated at San Francisco, Calif., and work was begun to repair and outfit it for active fleet support. A new medical outfitting list, designed to support the latest medical techniques and practices, was prepared by the Material Division of the Bureau of Medicine and Surgery.

Steps were taken to outfit the Atlantic Underwater Training and Evaluation Center (AUTEC) and the Naval Communications Station, North West Cape, Australia, with medical supplies and material. Medical requirements for a hospital facility in Vietnam were procured, assembled, and shipped.

Medical officers at the Aerospace Crew Equipment Laboratory completed a 34-day confinement study of six men in an oxygen-enriched, lowered atmospheric pressure environment. The men under test ate experimental food preparations while performing simulated space vehicle tasks.

The Navy's Manned Orbiting Laboratory (MOL) Project Office cooperated with the Air Force in the biomedical aspects of training, monitoring, and recovery of MOL astronauts.

Analysis of data on 1,000 psychiatric patients at naval hospitals was begun. Preliminary results show interesting elevated prevalence of psychiatric disease among certain population sub groups.

Navy dentists found that the use of a chrome-cobalt alloy instead of precious metal in the fabrication of partial denture frameworks produced an 80 percent saving in metal costs. Equipment needed to use this alloy has been installed in 36 prosthetic laboratories to date, and other installations are planned.

A study showed the feasibility and desirability of central dental processing laboratories which can serve satellite laboratories of limited capability. Plans are underway to implement this concept on a Navy-wide scale.

A major step in preventive dentistry was achieved through a new "self-preparation" method of applying stannous fluoride. This method enables three dental personnel to treat over four times as many patients as were treated under the conventional individual techniques.

V. Economy and Efficiency

Management Improvements

The Navy stressed management improvement throughout the year, spanning many organizational and functional areas. Evidence of accomplishments are treated in detail in several parts of this report, but the main points are summarized here for convenience.

Organization

Among the most significant improvements was the continued development of the Naval Material Support Establishment under the Chief of Naval Material as a single unified material support organization. This development, reported last year, will provide closer management control over material operations.

The Office of Management Information, under the supervision of the Special Assistant to the Secretary of the Navy, was established to exercise authoritative direction over management information systems, to administer the Departmental automatic data processing equipment program, and to provide top Navy decision-makers with more timely, accurate, and meaningful management information.

The responsibility for determining qualitative requirements for Navy personnel was transferred from the Bureau of Naval Personnel to the Office of the Chief of Naval Operations. This move integrates in one office the responsibilities for determining quantitative and qualitative manpower requirements and should lead to the improved determination of requirements.

Throughout the Department there were many other organizational changes, each contributing in its particular area to improved management. Typical among these was the establishment of the Navy Appellate Review Activity at the Washington Navy Yard. This move by the Judge Advocate General consolidated east and west coast offices at a saving of seven military and civilian billets and avoided a pending \$100,000 relocation of the west coast office. This centralized review activity close to the Court of Military Appeals and Judge Advocate General headquarters should produce further improvements in efficiency.

In compliance with the Secretary of Defense interim plan to reduce fragmentation of headquarters activities located in widely separated buildings, the following were accomplished:

a. Most elements of the Bureau of Supplies and Accounts were relocated from the Arlington Annex to the Main Navy Building.

b. The Navy Finance Center was relocated from Tempo E to the Munitions Building.

c. The Office of Naval Research was moved from Tempo 3 to the Main Navy Building. Tempos 3, 4, and 5 were then demolished, in accordance with the beautification program of the Mall area surrounding the Washington Monument.

d. The Navy Purchasing Office was relocated from Tempo D to the Washington Navy Yard.

Project Management

The project management concept was expanded and strengthened. New project offices for the OMEGA (Loran), AIMS (Air Traffic Control), REWSON (Reconnaissance), and ACLS (Carrier Landing System) projects were established under the Chief of Naval Material (CNM), making a total of nine CNM designated projects. Eleven project charters were issued by bureau chiefs during the same period for a total of 14 bureau projects. With the approval of the Fast Deployment Logistic Ship (FDL) Project, the project management concept will be applied, on a trial basis, to shipbuilding. In addition, a uniform financial framework for project management and a standardized planning and progress reporting system were established to improve management control.

Management Information

The growing need for timely, relevant management information led to a number of significant developments. New or improved management information systems were developed to answer specific needs. Two basic categories of management information, Fleet readiness and program progress, were defined by the Office of the Chief of Naval Operations, and procedures were established to provide the required information. A new system in the closely allied area of material readiness—the Equipment Distribution and Condition (EDAC) Statistical Reporting System—was established to identify potential trouble areas. Within the Naval Material Support Establishment, a mechanized Training Requirements and Information Management System (TRIM) was set up to provide budgeting and manpower planning information for top management and to automate various records and reports which formerly required many man-hours of manual processing.

Two major systems for accounting and reporting inventory transactions were consolidated by joint action of the Office of the Comptroller of the Navy and the Bureau of Supplies and Accounts, thereby eliminating duplication. A second improvement in financial systems resulted when the Office of Naval Research assumed responsibility for updating the Five-Year Force Structure and Financial Plan (FYFS&FP) for the entire Research, Development, Test and Evaluation Navy (RDT&EN) program. As a consequence, uniform reporting has been established for the RDT&EN appropriation with a central control point to assure compatibility with all phases of the RDT&EN program/budget.

Procurement and Logistics

Advance Procurement Plans, required since January 1964, have already reduced the need for uneconomical sole source contracts. To further enhance these benefits, a recent study was made to integrate procurement planning with technical and financial planning in the weapons development/acquisition process. Although the study is still being reviewed, the recommendation to require an Advance Procurement Plan as an annex to all technical Development Plans has already been put into effect.

A study sponsored by the Deputy Chief of Naval Operations (Logistics) and the Chief of Naval Material identified weaknesses in the present Navy Logistical Support System and recommended an improvement plan of 19 major projects. Task force groups have been established to implement these projects by June 1966.

Illustrative of the many procedural-type improvements in this area is the development of the Navy Contract Clause Book. Many contract clauses are required by statute or regulations to appear in every Government contract. In a typical firm fixed-price supply contract, for example, the Navy is required to set forth in full the text of 37 clauses. These mandatory statements have been brought together in a Navy Contract Clause Book, thereby permitting clauses to be incorporated in contracts by reference rather than by actual printing of the text of the clause. After field testing, the Navy recommended the adoption of the concept of a Clause Book on a Department of Defense basis.

The Armed Services Procurement Regulation Committee has approved the use of the Clause Book (along with an alternate method of adopting clauses by direct reference to the ASPR) by all the Services on a test basis, and a Department of Defense Clause Book modeled after the Navy Clause Book will be prepared for that purpose.

Manpower Management

Manpower management improvement focused on the application of performance standards and actual on-site manpower surveys. The

Chief of Naval Material installed the Defense Integrated Management Engineering System (DIMES) in 13 industrial or supply activities. This system has produced savings of over \$5 million through the application of engineered time and performance standards. A similar system, the Automated Warehousing Gross Performance System, is now being installed at nine supply activities, with expansion to other activities planned.

New staffing criteria issued by the Bureau of Supplies and Accounts generated reductions of personnel and improved supervision. The Bureau of Naval Weapons conducted on-site surveys at 10 activities to establish minimum manpower requirements and to improve distribution of available manpower.

Paperwork Management

Reports and forms in the Navy are constantly reviewed. This year's effort freed an estimated $5\frac{1}{4}$ million man-hours annually for other work. Over 1,300 activities and operating force components participated in eliminating or improving approximately 20 percent of the more than 158,000 reports and forms used. The Marine Corps, for example, canceled 76 reports and improved 27 reports for an estimated savings of 145,900 man-hours. The Bureau of Naval Personnel and its field activities eliminated 357 and improved 333 reports for a saving of 162,347 man-hours. Similar savings were made in the forms area.

The Navy's record disposal program brought about a 5 percent reduction of its total records holdings, while for the same period the over-all Government holdings climbed by over 2 percent.

A review of administrative practices in the Amphibious Forces, U.S. Pacific Fleet, produced some 65 recommendations which are now being implemented to simplify and streamline paperwork and transfer administrative workload ashore. As a result of a departmental review of reporting requirements imposed on Fleet units operating under emergency conditions, it is expected that Fleet commanders, when authorized, will be able to effect a 70 percent reduction for eligible units.

Miscellaneous

Automated materials handling systems were installed at the Naval Supply Center, Long Beach, Calif., and the Puget Sound Naval Shipyard, Wash., during fiscal year 1965, increasing the number of automated activities to seven. Total investment to date for these automated systems is \$4,569,000. Annual savings are \$1,615,000, resulting in an amortization period of less than 3 years.

The analysis and prognosis of hemispheric meteorological and oceanographic data were centralized at Fleet Numerical Weather

Facility, Monterey, Calif. This facility, with its large computer capacity, performs the basic hemispheric analysis and prognosis, then transmits these products via high-speed data link to other Fleet Weather Centrals/Facilities where the products are tailored to meet local requirements.

The U.S. Naval Oceanographic Office has developed a new ocean survey concept that embodies two significant cost and effectiveness improvements. First, the older grid method of survey is being replaced with a statistical sampling; and second, the survey is designed to meet the needs of two separate users, thus avoiding the expense of a later survey. These changes will lead to substantial savings of many ship-years and man-years.

A Navy Programing School, the first of its kind in the Department of Defense, was established by the Navy Department Program Information Center to instruct personnel in the fundamentals of the DoD Programing System. Over 500 persons from the Navy, and from other agencies as well, have attended.

Analytical Studies

Navy planners and decision-makers depend upon cost/effectiveness studies as one of the most valuable tools in structuring programs and force levels. There has been an increased demand for valid and timely studies to assist in determining naval requirements and to support naval program proposals.

Study Programs

The Center for Naval Analyses (CNA) is the principal contract organization for the Navy's major cost/effectiveness studies. These major studies are conducted by study groups jointly staffed by CNA scientific civilian personnel, experienced naval officers, and civilians of the Department of the Navy. The major divisions and tasks of the Center for Naval Analyses are:

a. *Institute of Naval Studies*—Long-range conceptual and strategic studies aimed at identifying profitable areas for advanced research and development.

b. *Naval Warfare Analysis Group*—Analytical investigations of alternative force compositions and force levels for the midrange time frame.

c. *Operations Evaluation Group*—Analyzing operational weapon systems, naval tactics, and development of combat models. Also provides technical assistance to the warfare desks and the operating forces.

d. *Systems Evaluation Group*—Development of technological models, an engineering data base, and an economic effectiveness and performance analysis of engineering designs.

The Navy's "In-House" analytical study program is conducted by the Chief of Naval Operations using professionally qualified naval officers and civilian specialists with occasional contract assistance. These studies encompass the complete spectrum of naval warfare in the conceptual, strategic, technological, and feasibility areas.

The Chief of Naval Operations coordinates the entire Navy Department study effort to avoid duplication between cost/effectiveness studies and those contracted for by the Office of Naval Research and the Navy Laboratory System.

Contracting

Contract Awards

Navy contracts last year totaled \$8.7 billion as compared with \$8.0 billion in fiscal year 1964. A significant reduction was made in cost-plus-fixed-fee contracts as shown in the table below:

Area	Fiscal year 1965	Fiscal year 1964
Total Obligation.....billions..	\$8.7	\$8.0
Price Competition.....percent..	41.7	36.7
Formal Advertising.....percent..	19.6	13.5
CPFF Contracts.....percent..	9.4	11.1
Small Business.....percent..	16.5	15.2

Advance Procurement Planning

The Navy continued to emphasize advance procurement planning. The Chief of Naval Material reviews and approves the proposed procurement plans for each negotiated development procurement exceeding \$300,000 and each negotiated production procurement exceeding \$1 million. During the fiscal year, a total of 157 advance procurement plans were approved by the Chief of Naval Material.

A Procurement Planning Study Group was convened in March 1965 to develop policy, procedural guidance, and appropriate organization and staffing needed to integrate procurement planning with technical and financial planning in the weapon system development/acquisition process.

Career Development

During the latter half of the fiscal year, Navy and DoD personnel developed career progression patterns for military and civilian personnel in procurement. The purpose was to (1) recognize the importance of the procurement function, and (2) provide incentives and career motivation necessary to attract, motivate, develop, and utilize highly qualified personnel in procurement billets. Key procurement billets

have been identified for this purpose and definitive plans are being developed under the over-all direction of the Office of the Assistant Secretary of Defense (Manpower). Target dates for full implementation are November 1, 1965 (military personnel) and May 1, 1966 (civilian personnel).

Cost-Plus-Award-Fee Contracting

As reported last year, the Navy undertook—with ASPR Committee approval—an experiment in the use of a new type of contract called cost-plus-award-fee. In fiscal year 1964, eight such contracts were made. During fiscal year 1965, this number increased to 19. This type of contract requires the contractors to earn (on the basis of periodic written evaluations, by Government personnel, of the contractors' performance) all fees above a low guaranteed minimum. All fees above this minimum are paid as the result of a unilateral decision by the contracting officer.

Contractor Performance Evaluation

The contractor performance evaluation program, established in fiscal year 1964 to check the effectiveness of major research and development contractors in meeting their contractual commitments, was more than doubled in fiscal year 1965. Twenty-three performance evaluation reports were processed and entered into the Department of Defense central data bank. These projects included conventional, as well as helicopter and vertical take-off, aircraft, missiles and missile guidance systems, sonar and radar components, torpedoes, jet aircraft engines, and a hydrofoil ship.

Cost and Economic Information System

During fiscal year 1965, the Cost and Economic Information System (CEIS) was established to provide military departments and OSD with reliable and timely cost and economic data on weapon systems. This CEIS system features (1) improved cost estimating, cost and price analysis, and progress reporting; (2) more effective planning, programing, budgeting, and contract negotiating; and (3) provides data necessary for analysis of economic impact by geographic area and industry.

Use of Barter to Reduce International Balance of Payments

The Department of the Navy Barter Program, started in January 1964, was expanded. Barter contracts during fiscal year 1964 totaled \$6 million, and in fiscal year 1965, \$28 million. The goal for next year is \$50 million. Barter has proved to be a significant tool in reducing the international balance of payments deficit.

Financial Management

Organization

Two major changes were made in the organization of the Comptroller of the Navy. The first change involved the merger of two former Assistant Comptrollerships; namely, Field Activities and Accounting and Disbursing, into a Directorate of Financial Services. This Directorate became operative on April 1, 1965. It streamlined headquarters operations and provided improved financial management services on a department basis, and effected annual personnel economies in the amount of \$22,000. The other change involved the transfer of the Navy's contract audit function and responsibilities to the Defense Contract Audit Agency on July 1, 1965. With the transfer of Contract Audit, the Navy's effort will now be directed toward strengthening its internal audit function.

Integration of Programing and Budgeting

A closer integration of budgetary-type reviews with the program development of force requirements and support resulted during the past year in a more active role by the Office of the Comptroller of the Navy in formulating recommendations to program sponsors. Such participation provides the department with programs more precisely expressed in terms of funding needs and planned accomplishment.

Analysis of Unobligated and Unexpended Funds

The Comptroller of the Navy initiated and carried out an extensive program of review and analysis of unobligated and unexpended balances in the no-year appropriations, especially in the older programs. The review accomplished the following objectives:

- a. It verified the validity of outstanding obligations.
- b. It verified the need for retention of unobligated funds in the older program years.
- c. It provided for review and earlier liquidation or transfer to liquidation accounts of program-year subheads. Funds not required to complete old programs were used to reduce the new obligational authority requested from Congress for the fiscal year 1966 program.

Excess Currency

An agreement was reached with Israeli officials which permits the partial payment of Navy Ships Store Office procurements in Israel with excess Israeli pounds held by the U.S. Treasury. Navy transactions will amount to \$1 million in fiscal year 1966. It is expected that similar arrangements will be negotiated with the Governments of India, Yugoslavia, and Egypt.

Reserve Drill Pay

Reserve drill pay accounts were formerly maintained at 26 separate continental activities for the 120,000 reservists participating in drills and active duty training. A staff of 95 persons was required for manual handling of these accounts. As a result of a feasibility study, the accounts were centralized at the Navy Finance Center, Cleveland, Ohio, and were converted from manual to mechanized processing techniques on July 1, 1965. The centralization and mechanization of reserve drill pay are estimated to save \$250,000 annually and, at the same time, improve the service to the reserve. By January 1, 1966, the oversea drill pay accounts will likewise be centralized and mechanized.

Consolidation of Disbursing Functions

Disbursing functions at two activities managed by Bureau of Naval Weapons were consolidated into the Comptroller of the Navy field activity network. The Navy Finance Office at Long Beach, Calif., has taken over the disbursing previously done by NAS Los Alamitos, N. Mex., and disbursing formerly done by NOL Corona, Calif., has been divided between the Finance Office, Long Beach, and the Regional Finance Center, San Diego, Calif. The estimated annual savings of these consolidations amount to \$42,400.

Civilian Career Planning

Studies showed a requirement for a source of well-qualified, well-educated candidates for promotion to middle and upper management positions throughout the organization of the Comptroller of the Navy.

Accordingly, a junior executive training program was established to induct 15 trainees each year. After 2 years' training, the trainee, who was inducted at either a GS-5 or GS-7 level, will be qualified to compete for any open positions that become available.

Career plans were also established in other functional areas of the Navy, notably procurement, personnel, supply management, and certain wage board occupations.

Shipboard Supplies and Equipage Accounting and Reporting

Supplies and equipage fund administration for the operating forces was improved. The new system reduces records and effort aboard ships and provides for the major accounting effort to be performed by shore activities. The major accounting effort is assigned to the Navy Regional Finance Centers at Norfolk, Va. and San Diego, Calif. The system provides obligation, expenditure, and consumption information by material categories aligned to management and budget submission requirements. It is anticipated that the system will be ready for general use in fiscal year 1967.

Concurrently, the Marine Corps developed a Uniform Accounting Classification Code System for application at Marine Corps Supply Centers. This system provides uniformity of financial information and assists management in evaluating the performance of field activities through the standardization of financial input data.

Auditing

Once again the Navy audit organization devoted two-thirds of its effort to audits at contractor plants. The other one-third was in the area of internal audit of Navy Management.

Efforts were made to shift a greater portion of the internal audit from problems of individual activities to those having an impact on service-wide operations. Service-wide audits are based on a concept of over-all appraisal of business management.

The incentive for service-wide audits stems principally from problems reported in prior audits of individual naval activities. The problems involve such matters as supply management, control of inventories, and the utilization of equipment and facilities.

Audits conducted at the request of individual managers included the following representative types:

1. Aeronautical depot maintenance costs.
2. Resource utilization in the Western Pacific.
3. Common service at naval complexes.
4. Utilization and maintenance of materials-handling equipment and motor vehicles.

A brief summary of audit input and results for fiscal year 1965 is shown below:

CONTRACT AUDIT

Contract audit costs.....	\$10, 147, 000
Contract audit savings recommendations.....	\$804, 276, 000
Amounts examined.....	14, 264, 289, 000
Contracts examined.....	17, 702
Contractors examined.....	1, 809
Reports issued.....	15, 335

Each dollar invested in contract audit brought a return of \$79.00 in savings recommendations.

INTERNAL AUDIT

Internal audit costs.....	\$4, 886, 000
Internal audit savings recommendations.....	\$63, 858, 502
Reports issued.....	520

Each dollar invested in internal audit brought \$13.00 in management improvement recommendations.

Inventory Management

The Department of the Navy continued to move toward better inventory management through automation involving random access and real time processing, centralization, and standardization of policies and procedures, and physical inventorying.

Inventory Control

The inventory of slow-moving and reparable items was reduced. New criteria and policies for shipboard allowances were approved by the Chief of Naval Operations and a Fleet-wide canvass of deficiencies in allowance was completed. Programs for improving Navy Supply System response included the High Value Item Management Program, the Variable Stock Level Program, utilizing mechanized mathematical decision rules, the Supply Operations Assistance Program (SOAP), the SCIP Program (Ships Capability Impaired for Lack of Parts), and the MSIIP Program (Missile System Installation Impaired for Lack of Parts).

System Automation

A Navy Uniform Automatic Data Processing System was installed at all major supply centers and depots. The Automated Materials Handling Systems Program which has been underway for several years was expanded during fiscal year 1965 to include the Naval Supply Center, Long Beach, Calif., the Puget Sound Naval Shipyard, Wash., and the Marine Corps Supply Centers at Albany, Ga., and Barstow, Calif. Existing systems were extended at the Naval Supply Centers in Norfolk, Va., and Charleston, S.C., and the Naval Supply Depot, Philadelphia, Pa.

Physical Inventory

Physical inventory of about two-thirds of Navy stores account material was completed, and inventories of supplies aboard 250 ships undergoing overhaul turned up \$6 million recoverable excesses. In accordance with the Defense program, about 72,500 items of supply were transferred to the control of the Defense Supply Agency.

The 3-M Program

Expansion of the Standard Navy Maintenance and Material Management (3-M) Program provided data processing equipment for 10 additional ships. In approximately 2 years, 65 tenders, repair ships, and aircraft carriers will have automated supply and accounting systems as an integral part of the 3-M shipboard information system. Completion of the program will provide management improvement techniques, integrated reports, and improved material and budgetary control. Similarly, 3-M supply support procedures were planned,

programed, and implemented to a degree at 19 Naval Air or Auxiliary Air Stations.

Cost Reduction Program

Command attention and a vigorous incentive program produced hard savings in the Navy and Marine Corps of over \$1.6 billion during the year. The Department's annual goal was exceeded by more than 60 percent. The Navy's Incentive Awards Program was an important factor in realizing these objectives. During fiscal year 1965, approximately 70,000 employees submitted suggestions or were recommended for awards in recognition of superior performance. Estimated first-year net benefits from suggestions for which awards were made totaled \$18,560,658. The average savings for each dollar awarded was \$22, and the average savings for each adopted suggestion was \$1,039. The total first-year dollar benefits to the Navy which have resulted from these employee contributions were more than \$48 million.

Automation

The Department of the Navy continued to move along with industry in the rapid transition to automatic data processing for better management and control. During the past year, there was an increase of 40 digital computers in the Navy and Marine Corps. Total operating costs of automatic data processing ran \$183 million in fiscal year 1965.

It has been pointed out previously how these systems are used both in shore activities and in certain types of ships. An interesting new development occurred when Marine Corps units deploying to Southeast Asia took mobile data processing equipment along. The ability of the initial "mobile facility" to support the logistic requirements of the Marine Corps was so effectively demonstrated that a second computer was sent to provide an on-site dual back-up capability.

Manpower Utilization

Utilization of military and civilian manpower resources is an important, continuing problem which has direct interest and support at the Secretarial level. Improvements in manpower utilization progressed last year through intensive examination of staffing criteria, validation of requirements, work studies, and surveys.

Staffing Criteria

The Navy Staffing Criteria Program, which relates manpower requirements to workload, produced criteria for 74 major functions and 324 subfunctions for activities afloat and ashore. Studies were made by the Navy and Marine Corps to determine suitability for use of

women, male civilians, or military in many shore billets and positions. As an example, the Navy appointed or promoted 137 women to positions of GS-12 and above during the year. Studies at Newport, R.I., Naval Base Complex showed that certain military billets were feasible to convert to direct hire or contract civilians. A similar study with another purpose was directed by the Chief of Naval Operations. This was aimed at reducing excessive sea tours (more than 4 years at sea for 2 years ashore) for men in "deprived" ratings by converting selected civilian positions ashore to enlisted billets.

Requirements

The permanent organization of the Navy Manpower Validation Program was completed before the end of the fiscal year. Twenty-two shore and fleet survey teams were established and operational. A board of Marine Corps general officers completed a comprehensive survey of the entire billet structure of the Corps. After careful examination, 1,489 military billets were eliminated and the tables of organization were revalidated.

Studies and Surveys

The Navy undertook work measurement studies of laundries, warehouses, and hospital services. The Marine Corps conducted an exhaustive study of the Women Marine Program. Both Services devoted considerable attention to special employment programs. A noteworthy accomplishment in this area was the support rendered the Youth Opportunity Program. Summer employment positions paid from appropriated funds were found for 3,103 youths, and 450 more were hired in nonappropriated fund activities.

Safety

The Department of the Navy's magazine, *Safety Review*, won the National Safety Council's Award of Merit in recognition of its exceptional service in the promotion of safety for the calendar year 1964.

Although relatively more disabling injuries were reported for civilian employees during this fiscal year, the severity rate improved by 18 percent, so that the time lost was reduced from 311 days per million man-hours to 254 days per million man-hours. Military on-duty injuries at shore activities decreased by almost 17 percent (from 1.20 to 1 injuries per million duty-hours); however, the severity rate increased by almost 18 percent so that the number of days lost per million duty-hours was raised from 108 to 127.

The average number of miles driven per accident by Department of the Navy motor vehicles improved by 9 percent, e.g., from 110,750 miles to 121,000 miles per accident.

VI. Civilian Economy Relations

Industrial Facilities

Industrial Plants

The Navy continued to reduce holdings of Government-owned industrial facilities in favor of private industry. Its inventory of industrial plants of all categories decreased from 111 to 104 by the sale or transfer of interest in seven plants.

Plants sold or transferred included the following:

Plant	Sold/transferred to	Amount
Naval Weapons Industrial Reserve Plant, Decatur, Ill.	WGT Corporation Philadelphia, Pa.	\$765, 000
Naval Weapons Industrial Reserve Plant, Saginaw, Tex.	U.S. Army-----	-----
Naval Weapons Industrial Reserve Plant, Bengies, Md.	General Services Administration.	-----
U.S. Naval Weapons Industrial Reserve Plant, Denville, N.J.	Thiokol Chemical Corporation.	2, 881, 000
Aerojet General Corporation, Azusa, Calif.	Aerojet General Corporation.	116, 000
Todd Shipyards Corporation, Brooklyn, N.Y.	Todd Shipyards Corporation.	1, 087, 000
General Motors Corporation, Cleveland, Ohio (National Security Clause Interest only).	General Motors Corporation.	152, 200

The largest disposal involved the Naval Weapons Industrial Reserve Plant, Decatur, Ill.—an active Government-owned contractor-operated plant configured to produce low drag bombs. Originally acquired at \$18.3 million but out of service for a number of years, the plant was sold by the General Services Administration as indicated above.

Miscellaneous

Efforts to lease facilities of the disestablished Naval Repair Facility at San Diego, Calif., to private interests have been unsuccessful.

It was decided to disestablish and dispose of the New York Naval

Shipyard, Brooklyn, by the end of fiscal year 1966, and actions to phase down its activity were initiated.

In addition, a decision was reached to sell the Naval Ordnance Plant, Macon, Ga., to industry as a going concern. This method of sale will cause minimum economic impact on the area, and possibly will result in an increased return to the Government.

Industrial Production Equipment.

The Navy reduced its inventory of Government-owned industrial production equipment held by private contractors from \$402 million to \$354 million, a reduction of \$48 million (12 percent).

The Merchant Marine

On June 30, 1965, the U.S. Merchant Marine consisted of 954 privately owned ships (1,000 gross tons and over). New ship construction is primarily in the new C-4 *Mariner*-class cargo ship which emphasizes automation. On January 1, 1965, 41 freighters were building, with an annual rate of about 15-17 ships.

Fourteen large (600 or more troop capacity) privately owned U.S.-flag passenger ships are available to augment troop-lifts in an emergency. No additional construction is anticipated and it is expected that the owners will have difficulty in keeping all of these ships operational.

The subsidized dry-cargo fleet of about 300 ships has considerable potential for Navy use. It includes 120 large, fast ships built since 1950 which could serve as military auxiliaries. New commercial construction schedules 13 fast cargo ships for delivery to private owners during fiscal year 1966. On the other hand, most of the remaining U.S. dry-cargo fleet is over 20 years of age and is headed for "block obsolescence." And there are shortages in commercial roll-on/roll-off, refrigerator ships, as well as ships with a very heavy lift capability.

On June 30, 1965, there were 279 privately owned U.S.-flag tankers, of which 255 could be considered large oceangoing ships. The current trend to build larger tankers, which are more economical for commercial use, restricts their military utility. For example, only 23 of the 109 tankers built since 1950 are of the 25,000 tons or less deadweight class, which are more suitable for military support.

Small Business

The Navy continued to increase its awards to small business, meeting for the first time both percentage and dollar goals. Small business concerns received 16.5 percent (\$1,375 million) of Navy prime contract

awards to U.S. business firms. This was an increase of \$87.7 million over the previous year.

Equal Employment

Throughout the year, emphasis was placed on a positive program to increase employment and promotional opportunities for minority groups. This included: (1) Top management interest, supervisory training courses, industrial relations institutes, and seminars to communicate the Navy's Equal Employment Opportunity (EEO) program; (2) issuing informative material for the guidance of naval activities in developing local EEO programs and resolving problems; (3) appraisal of activity efforts and achievements, and dissemination of techniques and methods which appear to have general applications; (4) analysis of minority group employment statistics and discussion of serious imbalances with the naval activities concerned; and (5) a conference for senior bureau personnel officers and district civilian personnel directors held in Washington on April 28, 1965. The conference, which will be a prototype for 13 regional conferences to be held in fiscal year 1966, stressed practical approaches to increasing the employment and promotion of minorities, and to improving command relationships with minority communities.

Labor Surplus Areas

Awards to contractors in surplus labor areas in fiscal year 1965 were \$1,378 million. This was \$277 million more than fiscal year 1964. The share of total awards going into these areas increased from 3.4 percent to 17.4 percent notwithstanding the fact that the total number of areas with substantial unemployment decreased from 715 to 545 during the past year.

VII. Conclusion

The last half-century has shown, and the past three decades have emphasized, the necessity for United States participation in world affairs. This experience has further demonstrated that the Navy has been essential to any national venture abroad. As fiscal year 1965 becomes history, two more significant international events have been added to naval annals.

The crises of the Dominican Republic and Southeast Asia showed once more that seapower was essential to success. The preceding pages of this report document the ability of the Navy and Marine Corps to meet these and other unusual demands of another year of cold war. Further, these examples show their ability to limit the application of force to that consistent with political aims. Precision in operations, so characteristic of seapower, is fast becoming the most important single ingredient of international influence.

Despite this record of recent achievement, the Department of the Navy knows full well that present success is the product of previous foresight and planning. While day-to-day business and current operations are important, a major portion of departmental effort is directed toward the future. This is highlighted throughout the report, which cites extensive efforts to improve management, and to chart a course which takes advantage of scientific advances with the most efficient expenditure of funds.

Our plans for the future include projects to reduce costs and personnel requirements with concurrent increases in effectiveness. We are continually examining new ideas and better ways to get the job done. For example, we initiated a simple but encouraging test of a new long-lasting paint which may eliminate the seaman's age-old chore of chipping paint and rust to combat corrosion. We are also planning a trial application of the total package concept in a shipbuilding program for the Fast Deployment Logistic (FDL) type ship. This venture should produce the most effective and least costly designs which meet Navy performance and reliability standards. It promises very substantial savings through series production and encourages our local shipbuilders to introduce shipbuilding methods similar to those used successfully in high-labor-cost European plants. Another promising proposal that we are examining is the introduction of gas turbine

propulsion in new construction ships. Both the FDL and gas turbine propulsion programs are expected to effect personnel savings by reducing the size of crews required to operate the ships. The above projects are just a few examples of our forward-looking policy which emphasizes advanced design, operational and maintenance techniques for new equipment, and better ships.

For several years the Navy has reported unprecedented requirements for extended operations around the world. During fiscal year 1965, the tempo of operations for fleet units reached a new high. To maintain required readiness, to respond to fast-breaking situations, and to keep the long vigil at sea requires unusually strong and dedicated people. The performance of Navy and Marine Corps personnel under these conditions was in the best time-honored tradition of service. Their steadfast devotion to duty has been an inspiration to all.

To me, it has been a great privilege to associate with so many patriotic and dedicated people, both in uniform and out. The men and women of the Department of the Navy are its basic strength and its guarantee for the future. It is with their backing and support that I forward this report of accomplishment and state that the Department of the Navy is ready for action, military or humanitarian, in the immediate years ahead.

Paul H. Nitze

PAUL H. NITZE,
Secretary of the Navy.

I. Introduction

Annual Report

of the

SECRETARY OF THE AIR FORCE

July 1, 1964, to June 30, 1965

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I. Introduction

The U.S. Air Force filled many assignments in fiscal year 1965. None received more official and public notice than the air support provided for defense of the Republic of South Vietnam against aggression by the Communist-controlled Viet Cong and elements of the North Vietnamese army. That conflict reached a turning point during the year as the mission of U.S. ground, sea, and air forces expanded, at the request of the Government of South Vietnam, to include direct participation in military operations in addition to the earlier role of advisors to the military forces of South Vietnam. Air Force participation included the substantial use of airpower against Viet Cong units and military targets in South and North Vietnam and the airlift of troops and supplies both to and within the theater of operations.

Early in August 1964, North Vietnamese gunboats struck at the U.S. Seventh Fleet in the Gulf of Tonkin. The U.S. Navy retaliated by bombing these vessels and their supporting facilities in North Vietnam. At the same time, U.S. Air Force and Navy jets were authorized to pursue and destroy any attacking aircraft. On February 7, 1965, the Viet Cong attacked Pleiku airbase and other American sites. The United States responded with air attacks on North Vietnam. The following day, February 8, the Air Force used F-100's and B-57 jets for the first time in South Vietnam to repulse a Viet Cong attack.

Since February 1965, Air Force tactical airpower in Southeast Asia has been expanded to discharge a variety of related missions. U.S. Air Force tactical units, in cooperation with air units of the U.S. Navy and the Vietnamese Air Force (VNAF), have maintained air superiority, impeded the supply of reinforcements and materiel from North Vietnam, performed reconnaissance missions, provided airlift, and given close air support to U.S. and Vietnamese ground forces. Not only has this support been a major factor on the battlefield; the ability of airpower to penetrate areas where ground forces can move only with great difficulty has deprived the enemy of safe jungle sanctuaries to which they formerly could withdraw for rest and where they could store supplies in safety.

Air strikes against military and transportation targets in the North forced a substantial diversion of the enemy's resources to repair bomb-

damaged road and railroad nets over which supplies are delivered into South Vietnam. Though the attacks did not cut off all infiltration and resupply, they set a limit on the quantities which were or could be delivered to the South.

The B-52 Stratofortress, designed primarily to carry nuclear weapons but readily adaptable to the delivery of conventional bombs, was particularly useful against Viet Cong storage and rest areas in South Vietnam. In June 1965, the first of what was to be a series of B-52 tactical missions was flown against known Viet Cong concentrations. The B-52's hit area targets in the Viet Cong's hitherto invulnerable jungle and mountain sanctuaries—targets which required the rapid concentration of firepower at a level which would have been difficult or impossible to achieve with tactical fighters. Each B-52 could carry 27 750-pound bombs internally and 24 externally under the wings—an impressive display of weapon delivery power, even in this nuclear age.

Fiscal year 1965 was also a year of continued progress in the development and management of advanced weapon systems. The Air Force participated very actively in basic and applied research through its own laboratories and through sponsorship of basic research conducted by universities and other nonmilitary agencies.

New materials and techniques have made possible greatly improved performance in these systems. In the strategic offensive area, we improved the capability of our forces by introducing the MINUTEMAN II as a replacement for MINUTEMAN I. The newer model has a greatly improved warhead, increased accuracy, and other improvements which make it an even more effective weapon than MINUTEMAN I.

Our research and development work showed also that advances in metallurgy, airframe design, propulsion, and avionics could be combined to produce manned aircraft with performance characteristics which were not attainable before. Developmental efforts on subsystems were pursued vigorously in order to keep the manned bomber option open as a follow-on to the B-52, if needed. An advanced air-to-surface missile, the SRAM, will markedly increase the effectiveness of manned bombers when it is operational.

In the strategic defense area, we have developed an over-the-horizon (OTH) radar which may enable us in the future to rapidly detect missile launchings occurring thousands of miles away. The OTH system is expected to greatly improve the present 15-minute warning of an intercontinental ballistic missile (ICBM) attack by the Ballistic Missile Early Warning System (BMEWS).

Our aircraft warning net and command and control system improved steadily, and Air Force work on the YF-12 gave us an imme-

diately available option if a new manned interceptor is necessary. This aircraft, with its great speed, range, and altitude capabilities, should be able to cope with any bomber threat that we can anticipate.

In the strategic reconnaissance field, the SR-71 made its first flight in December 1964. This remarkable aircraft, which will fly at more than three times the speed of sound and at altitudes up to 80,000 feet, will greatly improve our capacity for worldwide reconnaissance. The first of these was scheduled to enter the operational inventory in mid-fiscal year 1966.

The Tactical Air Command (TAC), with its force modernization program, an increase in unit strength, and emphasis on rapid mobility, continued to improve its effectiveness as one of our most useful instruments of national policy. Cooperation with the Army, particularly in the close support mission which has been so effective in Southeast Asia, resulted in still further refinement of joint air-ground operational procedures and equipment. New aircraft like the F-4C came into TAC's inventory and the F-111 shaped up firmly on the horizon.

A doubling of our airlift capacity within the past 5 years has given this nation unequalled military mobility. The C-141, the first jet to be designed specifically for a military airlift role, came from the drawing board to active duty in less than 4 years. The first squadron of C-141's joined the Military Air Transport Service (MATS) in April 1965. When the C-5A becomes operational 4 years hence, we shall have a transport that could have handled the daily tonnage of the Berlin airlift of 1948-49 with 10 aircraft instead of the 225 C-54's that then were needed.

In space, the Air Force worked closely with the National Aeronautics and Space Administration (NASA) in developing new technology. We must still learn a great deal more about the functions man can carry out in space; this is the purpose of our Manned Orbiting Laboratory (MOL) program. The MOL will be launched by the TITAN III launch vehicle, which was developed in 2 years from contract signature to first firing. With that capability coming to fruition, the MOL program should progress well. Within the next few years, we expect to carry out manned flights of up to 4 weeks' duration, a vital steppingstone to man's future in space.

Effectiveness of the equipment we use in any area of Air Force activity depends on the quality of the people who use it, however. The Air Force has become the reliable instrument of national policy that it is today because of the professional competence of its hard-working, dedicated, imaginative people. They are, and always will be, our most valued and valuable asset.

II. Strategic Forces

The primary mission of the strategic retaliatory forces of the United States is to deter major wars through their capability to inflict unacceptable damage on an aggressor. The Strategic Air Command (SAC) during fiscal year 1965 maintained such a capability with more than 900 bombers and 854 ICBMs. A small number of B-52 heavy bombers loaded with nuclear weapons maintained a constant airborne alert. In addition, at least half the bomber forces—which still carry the overwhelming bulk of SAC's nuclear striking power—and a substantially greater percentage of the ICBMs were on ground alert, ready for action if required.

During the spring of 1965, SAC was assigned an important secondary mission in support of the conflict in South Vietnam. On June 18, B-52 bombers refueled in flight by KC-135 tankers, struck Viet Cong targets in South Vietnam with conventional bombs. The action marked the first use of B-52's in combat and the beginning of a sustained heavy bombardment campaign.

Force Structure

To reduce the gold flow, the U.S. Air Force (USAF) on April 1, 1965, halted rotation of ready B-47 units from the United States to European bases for temporary duty. With termination of these Reflex operations, SAC's 7th Air Division in England was inactivated after more than 14 years overseas. The Division's Brize Norton base was transferred to the Royal Air Force and the Upper Heyford base to U.S. Air Forces in Europe (USAFE). Reflex operations to the Pacific and Alaska continued.

As part of its medium bomber force reduction program, the Air Force eliminated four B-47 wings with 220 aircraft, and six KC-97 tanker squadrons with 120 aircraft. As a result, Little Rock AFB, Ark., and Forbes AFB, Kans., were released for use by other aircraft. The phaseout of the reconnaissance version of the B-47 proceeded more slowly because of a delay in acquiring its RC-135C replacement. SAC's KC-135 tanker force, which also supports TAC, reached its authorized strength of 44 squadrons and 620 tankers. With the aid of SAC in-flight refueling, more than 1,400 tactical jet fighters alone

have flown the Pacific since 1960 without a single incident, accident, or loss of life.

In line with Department of Defense (DoD) policy to discontinue, reduce, or consolidate activities wherever practicable, the Air Force closed Schilling AFB, Kans.; moved a B-52G unit from Eglin AFB, Fla., to Barksdale AFB, La., to accommodate a tactical fighter wing at Eglin; and transferred a B-52F unit from Barksdale to Carswell AFB, Tex.

In early 1965 the Air Force's second oldest organization, the 301st Bomb Wing, which had been discontinued when its B-47's were retired, returned to active duty at Lockbourne AFB, Ohio. The unit was redesignated the 32d Air Refueling Squadron and equipped with KC-135A's.

Strategic Aircraft

The size of the B-52 and B-58 force remained basically unchanged. There were 42 B-52 squadrons with 630 aircraft and 2 B-58 wings with 80 aircraft. Beginning in May, a few early model B-52B's were retired. Some 200 B-47's still remained in the strategic aircraft inventory on June 30, 1965.

Modification programs to extend the life of the B-52 fleet were continued. One project which strengthened fuselages, tails, and wings of the C through F series neared completion. Several others, to improve the newer G and H series aircraft, also were underway.

Training missions with AGM-28 HOUND DOG air-launched missiles and ADM-20 QUAIL decoy missiles continued to improve the B-52's penetration capability. A special series of launches tested the accuracy and reliability of the HOUND DOG. The Air Force does not plan to buy additional HOUND DOG or QUAIL.

The new strategic reconnaissance aircraft, the SR-71, made its first test flight on December 22, 1964, at Palmdale, Calif., exceeding an altitude of 45,000 feet and a speed of 1,000 miles per hour. Powered by two J-58 jet engines, the SR-71 is designed to fly more than three times the speed of sound, operate at altitudes up to 80,000 feet, and in 1 hour "scrutinize" an area of 60,000 square miles (the approximate size of Georgia). The SR-71 has been assigned to SAC's 4200th Strategic Reconnaissance Wing, which was activated at Beale AFB, Calif., in January 1965. Construction of technical and supporting facilities at Beale proceeded on schedule. Total development and procurement costs of the SR-71 program through fiscal year 1965 were estimated at \$950 million.

The Air Force continued to support the study and development of an Advanced Manned Strategic Aircraft (AMSA) as a replacement

for its aging B-52 bombers. In addition, the feasibility of procuring a strategic version of the F-111A tactical fighter was studied.

Strategic Missiles

On June 30, 1965, the SAC ICBM force consisted of 6 TITAN II squadrons with a total of 54 missiles and 16 MINUTEMAN squadrons with about 800 missiles on alert.

The Air Force completed the MINUTEMAN I program on June 30, 1965, as scheduled. The major support facilities for the five MINUTEMAN I wings are located at Francis E. Warren AFB, Wyo., Malmstrom AFB, Mont., Ellsworth AFB, S. Dak., Minot AFB, N. Dak., and Whiteman AFB, Mo. The wing at Francis E. Warren AFB controls 200 missiles; the other wings control 150 missiles each.

While the MINUTEMAN I force was nearing its peak, SAC was in process of eliminating its first generation liquid-fueled ICBMs—the ATLAS and TITAN I—from the operational inventory. All ATLAS D missiles were already phased out when the Secretary of Defense, on November 19, 1964, decided also to eliminate the ATLAS E's and F's and TITAN I's because of their high maintenance costs and slow reaction time as compared with the MINUTEMAN. Removal of the E's, F's, and TITAN I's began in January 1965. By the end of the fiscal year the Air Force had inactivated all 13 ATLAS and 6 TITAN I squadrons. The 216 inactivated missiles were stored pending their use as launching vehicles in several research and development (R&D) programs. The Air Force was authorized to dispose of 113 missile sites with land and improvements originally valued at about \$857 million. In June the General Services Administration (GSA) was requested to assist in disposing of all sites save one at Beale AFB, Calif., which the Air Force retained.

On March 1, 1965, SAC successfully launched a MINUTEMAN I missile of the 44th Strategic Missile Wing, Ellsworth AFB, the first strategic missile ever fired from an Air Force operational wing site. Nicknamed Project LONG LIFE the launching required the installation, checkout, and immediate firing of the missile on receipt of orders from SAC headquarters. To prevent "overflight" accidents, SAC limited the missile's range to about 2 miles by using inert second and third stages and just enough fuel to provide 8 seconds of power. The successful firing demonstrated that SAC missilemen could launch a MINUTEMAN from an operational site under near-operational conditions.

In July 1964 the Air Force began modifying the TITAN II force to increase its reliability and to improve maintenance. Through careful scheduling, SAC, Air Force Systems Command (AFSC), and Air

Force Logistics Command (AFLC) were able to maintain most of the missiles in a ready status while the work continued.

In November 1964 the TITAN II missile demonstration and shake-down program was completed following the fifth successful launch from Vandenberg AFB. In March 1965 the Air Force initiated a new test program to verify TITAN II effectiveness under conditions as nearly operational as possible.

During the year SAC conducted operational readiness inspections of 49 strategic missile squadrons and found an exceptionally high readiness rate. In all cases, the squadrons inspected received a passing rating and most were rated as outstanding.

The Air Force successfully launched seven MINUTEMAN II R&D missiles from Cape Kennedy, Fla. Meanwhile, construction of sites for the first three MINUTEMAN II squadrons at Grand Forks AFB, N. Dak., was delayed, primarily because of bad weather. However, all facilities were to be turned over to SAC during the next fiscal year. Construction costs were estimated at \$187.5 million.

In February 1965 the Air Force contracted for construction of facilities for a fourth MINUTEMAN II squadron, to be located with the MINUTEMAN I wing at Malmstrom AFB, Mont. Construction costs were estimated at \$66 million. At Vandenberg AFB, Calif., training facilities to support the MINUTEMAN II program were nearly completed during the year.

The Air Force planned to replace MINUTEMAN I missiles with the later version, modifying the silos to permit their use. Modernization of MINUTEMAN I launchers and control facilities should begin next year. When completed, the modernized MINUTEMAN I squadrons will have essentially the same operational capability as those of the MINUTEMAN II, and the total force will number 1,000 missiles.

SAC began using UH-1F helicopters in place of U-6A single-engine light aircraft to transport men and equipment to ICBM sites more than 35 miles from supporting bases. Helicopters were considered less costly in terms of real estate and airstrip preparation. On June 30, 1965, SAC had eight UH-1F's, and additional helicopter production was on schedule.

Strategic Command and Control

The \$400 million Strategic Command and Communications system (formerly Project 465L)—developed to provide the SAC commander with instantaneous data on the status of his aircraft and missile force—became partially operational. On March 1, 1965, the acquisition phase ended when AFSC turned over responsibility for system management

to SAC. The hardware proved excellent and the individual subsystems worked well, but the various subsystems were not completely integrated because of the complexity of the computer programming task. A management group, including members of SAC, AFSC, and AFLC, was working on the computer problem at the end of the year.

SAC's Post-Attack Command and Control System (PACCS) is designed to provide the commander with an airborne command post, supported by communication relay aircraft, that would survive thermonuclear attack. Since 1961 the 34th Air Refueling Squadron, Offutt AFB, Nebr., has flown airborne command post missions (LOOKING GLASS) in modified KC-135A tankers, redesignated EC-135A's. By April 1965 the squadron had flown 40,000 hours on this alert mission without an accident. While the command post aircraft flew the scheduled airborne alert, the communication relay aircraft remained on ground alert.

The reliability and other attributes of the postattack system were substantially improved. In September 1965 the EC-135A airborne command posts were replaced with EC-135C's, which had improved communication and refueling systems, battle staff facilities, and greater endurance. To provide better communication relay aircraft, the Secretary of Defense approved substitution of surplus EC-135's for old EB-47L's. The latter aircraft were phased out by early 1965.

The Air Force also took several steps to establish airborne command posts in both Europe and the Pacific and to modernize the National Emergency Airborne Command Post (NEACP). New EC-135's that became surplus were transferred to NEACP. In turn, older NEACP EC-135's were deployed to Europe to provide that area with a jet airborne command post. Other surplus PACCS EC-135A's were modified and transferred for use in the Pacific.

III. General Purpose Forces

The principal objective of the Air Force general purpose forces is to counter all types of threats to the national security short of a major nuclear war. Force capabilities range from engaging in special air warfare on behalf of friendly governments harassed by guerrilla insurgents to joining strategic forces fighting a large-scale general war.

The three primary Air Force general purpose forces are TAC, USAFE, and Pacific Air Forces (PACAF). TAC's composite air strike forces, with headquarters in the United States, are ready to deploy rapidly to any area of the world and conduct sustained operations from austere bases or strips. TAC also furnishes combat air units of the unified U.S. Strike Command (USSTRICOM). USAFE provides the combat-ready tactical air units pledged by the United States to the North Atlantic Treaty Organization (NATO). PACAF, the air component of the unified Pacific Command, is the Air Force tactical air arm in the western and central Pacific and in Southeast Asia.

During the fiscal year the Air Force stressed precise control of its responses to any level of aggression through selective use of weapons. Its improved capability in special air warfare was especially noteworthy in connection with the struggle in Southeast Asia. The Air Force role in that conflict is discussed separately in chapter VII.

Air Force general purpose forces played an important role in the crisis in the Republic of the Congo (Leopoldville). In November 1964 C-130's of TAC's 464th Troop Carrier Wing, Pope AFB, N.C., air-dropped Belgian paratroopers at two airports in that country, rescuing hostages and refugees. The TAC wing evacuated 1,500 Congolese and foreign nationals of 15 countries.

An airlift force of four C-130's, sent to the Congo in August 1964, helped supply Congolese Army units and the civilian populace in areas isolated by rebel forces. Two of these aircraft left the Congo in April 1965; the remaining two, which were scheduled to be withdrawn in August, continued to carry medical supplies and food to help civilians in liberated territories.

Force Structure

The Air Force continued to build its tactical forces toward the planned strength of 24 fighter wings. The number of active wings rose to 23, with an authorized tactical fighter strength exceeding 1,600 aircraft. Eight wings with more than 600 planes were deployed overseas, while 15 wings with more than 1,000 aircraft were based in the United States.

The fifteenth wing in the United States, the 33d Tactical Fighter Wing at Eglin AFB, Fla., was activated by TAC in April 1965. At the end of June, TAC's fighter force of 55 squadrons included 24 F-100, 3 F-104, 12 F-105, and 16 F-4C squadrons. Four other newly activated squadrons are scheduled to be equipped with F-4C's next year. The principal force structure change involved the replacement of F-84's in two wings with F-4C's.

In the event of mobilization, TAC would be strengthened by recalling to active duty Air National Guard (ANG) and Air Force Reserve (AFRes) units. These organizations would augment TAC with more than 1,400 combat-ready fighters and assault aircraft. ANG general purpose forces, totaling about 800 aircraft, include 7 tactical fighter wings, 2 air refueling wings, 3 tactical reconnaissance wings, 4 air commando squadrons, and 2 tactical control groups. During mobilization, TAC would receive 13 troop carrier wings with 39 squadrons of twin-engine aircraft from the AFRes.

The tactical reconnaissance force remained stable at 14 squadrons. However, modernization of the force began in October 1964 with delivery of the first RF-4C's to TAC's combat training group to replace the RB-66 and RF-101. The RF-4C, which is able to operate in any type of weather, contains framing cameras, infrared sensors, side-looking radar, forward-looking radar, and panoramic cameras. By June 30, 1965, 60 RF-4C's had been delivered to the Air Force and the 16th Tactical Reconnaissance Squadron, the first unit to receive the RF-4C, was combat ready.

The combat strength of USAFE consisted of 12 major tactical units. The 3d Air Force in England had three tactical wings and one reconnaissance wing. In July 1964 it activated a second reconnaissance wing headquarters to manage two of its squadrons in France. The 17th Air Force in Germany and France had three tactical fighter wings, a tactical missile wing, a reconnaissance wing, and a reconnaissance group. The 86th Air Division (Defense) in Germany, first line of air defense in central Europe, was reassigned in May 1965 directly to Headquarters USAFE from 17th Air Force. The 65th Air Division (Defense) was inactivated in December 1964 after training the Spanish Air Force to assume the air defense of its country.

The USAFE reconnaissance force was updated beginning in May 1965 when one squadron of RF-4C's arrived to replace an RB-66 squadron. The F-4C is also scheduled to replace the F-101 in England. Other important weapon systems in the USAFE inventory are the F-100 and F-105 fighters, the F-102 interceptor, the C-130 transport, and the MGM-13 MACE A and CGM-13 MACE B tactical missiles.

USAFE closed several bases in England by consolidating military missions and operations. The United Kingdom Subsistence Depot was moved from Burtonwood to London, where operations continued on a contract basis. As a result, activities at Burtonwood, a major base depot during World War II, ended in June 1965. Molesworth RAF Station, the USAFE redistribution and marketing center for all U.S. military units in the country, was returned to the British in January after the transfer of U.S. activities to Alconbury RAF Station.

Six major organizations are under the command of PACAF. The 5th Air Force, with units in Japan, Korea, and Okinawa, is responsible for the air defense mission in the Far East in cooperation with Japanese and Republic of Korea units. The 13th Air Force in the Philippines has a similar relationship with Philippine and Republic of China units. The 2d Air Division is responsible for Air Force activities in Southeast Asia. The 315th Air Division provides intratheater airlift. In Hawaii are the Hawaiian Air Defense Division and the PACAF Base Command. The Hawaiian ANG provides air defense for the fiftieth State.

Tactical Exercises

The operational readiness of tactical air forces and Army units was tested frequently by the Tactical Air Warfare Center, Eglin AFB, Fla., and in joint exercises conducted under the unified control of USSTRICOM. The Air Force strongly supported the joint Army-Air Force approach to develop, test, and evaluate doctrines and procedures for air-ground teamwork in waging limited war.

In Exercises INDIAN RIVER and GOLD FIRE I, both of which took place during the summer and fall of 1964, the Air Force demonstrated in simulated combat its ability to support ground forces. New techniques for delivering weapons and improved procedures for joint coordination and control added to the effectiveness of assault and intratheater airlift. In GOLD FIRE I, Air Force fighters used three different types of radar homing and warning equipment which contributed significantly to the success of the exercise.

As a result of these and other joint exercises, the Army and Air Force agreed on a new method of air-ground coordination which fulfilled two vital requirements for more effective close air support—speed and precision. Under the new method, the Air Force controlled

and operated an immediate Air Request Net for Tactical Air Control Parties (TACPs) at the battalion level and above. Immediate close air support and tactical reconnaissance requests were relayed directly from the battalion TACP to a Direct Air Support Center (DASC) which concentrated on meeting these needs.

Among important oversea exercises was WINTER TRAIL, a NATO operation involving units of five allied nations. Eighteen F-4C's flew from the United States to Norway in February to participate in the allied ground and air exercise. In June 1965 Exercise NORDIC AIR in western and central Denmark involved the largest airdrop of troops in Europe since World War II. To meet USAFE airlift requirements, TAC rotational aircraft plus some Military Air Transport Service (MATS) C-124's flew 122 missions to carry 2,300 U.S. Army paratroopers from Germany to Denmark. USAFE furnished close air support to participating U.S., British, and Danish troops.

PACAF also conducted several joint exercises. In October 1964, during Exercise SKY SOLDIER/TIEN BING VI, nearly 2,500 Chinese and American paratroopers jumped from USAF and Republic of China Air Force aircraft over Taiwan in an airborne defense maneuver. In the same month, PACAF F-105's provided close air support for U.S. Army troops on field maneuvers in Hawaii during Exercise TROPIC LIGHTNING.

Operation AYACUCHO, a training exercise held in Peru from December 5-10, 1964, involved forces of six Latin American nations—Argentina, Bolivia, Colombia, Paraguay, Peru, and Venezuela—and elements of the U.S. Air Forces Southern Command (USAFSO). These forces were augmented by components from TAC and MATS.

Air National Guardsmen flew 201,014 hours in support of 10 TAC exercises. As part of its 1964 summer field training, an ANG fighter wing and a reconnaissance wing flew nonstop to bases in Europe for the first time. Using ANG aerial refueling tankers, both wings completed the trip in 9 hours 15 minutes, a vast improvement over a similar deployment made during the Berlin crisis of 1961 which required 5 days and numerous stops. ANG medium transports helped make a success of POLAR STRIKE, a test of USSTRICOM capabilities to reinforce Alaska in an emergency.

AFRes units took part in six major TAC exercises and flew a total of 14,044 hours of airlift missions. During KING CRAB VII in October and November 1964, Reserve units participated in an air mobility exercise held by the U.S. Army and the Alaskan Air Command near Anchorage. Aside from the exercises, AFRes provided six aircraft weekly to support Army airborne training and also furnished aircraft for Army Reserve units attending summer encampments.

Tactical Aircraft

The introduction of the F-4C fighter, which has flown at a top speed of more than 1,600 miles per hour and reached altitudes of about 100,000 feet, substantially strengthened the tactical forces. The first F-4C wing was fully equipped in July 1964 and passed an operational readiness inspection in October. One squadron deployed to the Far East on a rotational basis in December. That same month four F-4C's set an unofficial jet fighter endurance record, flying nonstop nearly 10,000 miles in 18 hours.

By the close of the fiscal year the Air Force had received 408 F-4C's and production remained on schedule. Many improved F-4D's will roll off assembly lines in fiscal year 1966. A still more sophisticated aircraft, the F-4E, will not only have the air-to-ground capability of the F-4D but a significantly improved fire control system.

The newest and most versatile fighter aircraft, the F-111A, is scheduled for introduction into general purpose forces in the near future. It is capable of short takeoff and landing, extended loitering, and long-range flight. A two-man tactical fighter powered by two turbofan engines, the F-111A features variable sweep wings which, when retracted, will enable the craft to fly at Mach 2.5 and, when extended, to take off and land at slower speeds than current fighters. It carries conventional or nuclear weapons and is equipped with the latest air-to-air and air-to-surface missiles.

The first flight of the F-111A took place on December 21, 1964; flight testing continued during the remainder of the fiscal year. During this early testing period, the airplane achieved Mach 1.3, adjusting the sweep of the wings was routine, and maintenance proved comparatively simple.

The Air Force planned to use the "A" version of the F-111 as a tactical fighter, the Navy the "B" as an air supremacy fighter. Substantial progress was made in achieving a common configuration for the "A" and the "B" versions. Efforts to acquire an improved fire control system continued; five contractors submitted studies for evaluation. In April 1965 the Air Force negotiated production contracts for 431 F-111's (407 for the Air Force), to be delivered over a 4-year period.

In October 1964 Australia agreed to buy the F-111, and in April 1965 the United States and the United Kingdom reached an agreement which gave the British the option of purchasing it.

At the beginning of the fiscal year the Air Force grounded all F-105 tactical fighters. Detailed inspections disclosed that engineering and design deficiencies in the fuel system, engine, and flight control components had impaired flight safety. After consulting four aircraft

manufacturers, the Air Force began modification of the F-105 fleet at five locations in the United States, one in Spain, and one in Taiwan. The first portion of this modification program, initiated in March 1965, was completed in July. All modifications should be completed in 1966.

ANG and AFRes units used a variety of older aircraft. ANG general purpose aircraft supporting TAC included the F-84F, F-86H, RB-57A, B and C, RF-84F, U-10, HU-16, C-119, KC-97, F-100C, and F-105B. Changes in the active forces caused a delay in the allocation of additional F-100's forcing ANG to retain the aged F-84's and F-86's. AFRes transport aircraft assisting TAC were the C-119 and C-123.

Additional quantities of the AIM-7 SPARROW, AGM-12 BULLPUP, and AGM-45 SHRIKE missiles used by tactical fighters entered the inventory. Because several of these tactical air-to-air and air-to-surface missiles were being used in Southeast Asia as well as for training purposes, the Air Force maintained a tight control of their inventories.

New underground sites in Europe for the CGM-13 MACE B medium-range tactical missile were declared combat-ready early in the fiscal year. The percentage of these missiles not operationally ready remained less than the Air Force standard of 4 percent.

Tactical Command and Control

TAC was authorized one additional tactical control group and one direct air support squadron. Activated at Headquarters, 12th Air Force, Waco, Tex., the new units support the Air Force Tactical Air Control System, consisting of mobile communication-electronic facilities for command and control of oversea tactical forces. Procurement of these lightweight, highly mobile facilities, which allow an entire radar operating facility to be deployed in one C-130, proceeded.

The Air Force deployed additional personnel and equipment to expand the Southeast Asia Tactical Air Control System. Ground and airborne forward air controllers and air liaison officers were assigned to the area, while other personnel were sent to man aircraft control and warning and air traffic control systems jointly with host nations.

The Air Weapons Control System (412L) provided oversea commanders with facilities to detect and direct the interception of enemy aircraft and airbreathing missiles. In August 1964 the last of seven sites of the fixed semiautomatic system was turned over to USAFE and became operational in January 1965. USAFE phased out its obsolete manual system in March and transferred some of the facilities to West German control by June.

In December the complete Air Force aircraft control and warning system in Spain was transferred to the Spanish Air Force. The system consisted of seven radar sites and a combat operations center. The Spanish Air Force agreed to use the system for both air defense and air traffic control and to provide information to the U.S. forces without cost.

The Air Force released system specifications to industry for bidding on a semiautomatic air defense system for the Ryukyu Islands. This system, consisting of radars, communications, data processors, and command posts, will enhance PACAF's defenses in the Okinawa area.

Conventional Munitions

Projects started 3 years ago provided the Air Force with a number of improved nonnuclear weapons and better ordnance. The development, testing, and qualification of 13 new items were completed. They included four miniature bomb dispensers, four flame weapons and materials, an antipersonnel rocket warhead, and two gun pods with a high rate of fire. Several of these items were in use during the fiscal year.

The Air Force, with its built-up production base for nonnuclear munitions, expected to continue to accelerate production of critical items. A study of munitions consumed in combat will form the basis for Air Force stockage of contingency munitions. The three Services worked together to establish general requirements for conventional armament.

The increased tempo of R&D in conventional weapons reflected Air Force emphasis on nonnuclear combat capability. The trend in nonnuclear ordnance programs has been toward improved target detection, high velocity attacks on targets, and greater accuracy of delivery.

The Aeronautical Systems Division, AFSC, established a new organization to manage and integrate engineering developments in nonnuclear ordnance. The improved ordnance used in Southeast Asia is discussed in chapter VII.

Special Air Warfare

The 1st Air Commando Wing of TAC's Special Air Warfare Center, Eglin AFB, Fla., trained Air Force personnel in the special equipment and techniques used against insurgents. It also trained allied aircrews in close air support by day and night, the use of flares for nighttime detection, reconnaissance, and techniques for dropping men and supplies.

The Center's 1st Combat Applications Group, which developed more effective weapons and tactics for seeking out and destroying guerrilla units, worked closely with the 1st Air Commando Wing. Interested primarily in quick solutions to immediate field problems, the group has worked on more than 300 projects since 1962 in cooperation with the other Services, Government agencies, civilian institutions, and industry. For example, in dense jungles, many supply bundles dropped by parachutes have been snagged in tall trees just out of reach. A longer line between the bundle and the parachute solved this problem. Development of a shock-absorbent canister enabled pilots to drop supplies from A-1E wing racks or B-26K bomb bays without appreciable damage.

For training in special warfare, the Air Force employed a fleet of aircraft suited to the technical capabilities of countries where insurgent movements have occurred or are likely to take place. Since these aircraft were similar to those provided friendly nations under the Military Assistance Program (MAP), maintenance problems were simplified. The Air Force used the modified B-26K, the T-28, and the A-1E for training in air strikes and reconnaissance; the C-123, C-46, and C-47 for transport; and the U-10 for civic action. Many of these aircraft saw service in South Vietnam.

USAF Southern Command trained Latin American air forces in civic action as well as air operations against guerrillas. The 605th Air Commando Squadron (Composite), stationed in Panama, sent 20 mobile training teams to 13 Latin American countries which had requested assistance. Almost half of the teams devoted their efforts to civic action operations. The Air Force supplied small utility or transport aircraft with medical supplies and equipment. Local doctors and public health officials used these planes to visit outlying communities. Members of the ANG's 130th Air Commando Group trained in special air operations and civic action in Panama.

The number of squadrons in the special warfare forces rose from 10 to 12 as a result of a buildup in A-1E and C-123 aircraft. The Air Force used available aircraft to meet the needs of special warfare, modifying them as necessary. Since the number of A-1E's in the inventory was limited, the Air Force studied the possible procurement of a higher performance aircraft as a replacement. It also considered a minor modification of the proposed light-armed-reconnaissance aircraft (LARA) to increase its usefulness for civic action programs.

IV. Defense Forces

The Air Defense Command (ADC), a component of the joint United States-Canadian North American Air Defense Command (NORAD), continued to discharge Air Force responsibilities for the aerospace defense of the United States and its approaches. On June 27, 1965, ADC completed 15 years of continuous 24-hour runway alert. Regular Air Force interceptor squadrons, supplemented by 22 ANG squadrons, were prepared to launch interceptors within 5 minutes of receipt of an alert order. The original primitive warning radars of 1950 have been replaced with long-range radars scanning hundreds of miles. Six squadrons of surface-to-air CIM-10 BOMARC missiles, introduced in 1959, guard the northeast portion of the Nation. This defense force with its elaborate electronic detection system represents a capital investment of \$8 billion and requires an annual operating budget exceeding \$1 billion.

Force Structure

The size of the air defense forces, which had been diminishing since 1959, continued to decrease both in numbers of squadrons and aircraft. One ADC F-101 squadron, located at Davis-Monthan AFB, Ariz., was deactivated in December 1964 and the strength of two other F-101 squadrons was reduced because of the growing shortage of such aircraft, which have long been out of production. Reduction of oversea interceptor forces continued, as F-102 squadrons at Naha, Okinawa, and Misawa and Yokota, Japan, were inactivated or returned to the United States. Another F-102 squadron at Thule Air Base, Greenland, was scheduled for withdrawal during the summer of 1965. Aircraft from the deactivated or returning units were transferred to ANG to replace aging F-89's.

The F-104 and F-106 fleets remained basically unchanged. In May 1965, 12 F-104's of the 319th Fighter Interceptor Squadron deployed to the Dominican Republic to be there during the early days of the crisis. As in the past, ADC relied heavily on the ANG and its force of F-89's, F-100's, and F-102's, totaling about 420 aircraft. ANG units assigned to ADC flew more than 130,000 hours. On alert missions, they flew about 30,000 hours, performed more than 18,000 sorties, and made more than 38,500 successful intercepts.

Modernization of the interceptor forces progressed satisfactorily. All ADC F-104's were fitted with the M-61 20-mm. Gatling cannon by February 1965. The intercepting capabilities of the F-101 and F-106 aircraft also were improved, both for operating in an electronic countermeasure (ECM) environment and against low-flying targets. The Air Force significantly improved the safety of the F-106 escape system by developing pilot ejection equipment that permitted the system to operate at ground level in an emergency. After several successful tests of the F-106 system, the Air Force investigated the possibility of making a similar modification of the F-101, F-102, and F-105 aircraft.

While modernizing its manned interceptors, the Air Force actively pursued a dispersal program designed to increase the Force's ability to survive a missile attack. In addition, it procured 68 aircraft shelters in April 1965 at a cost of \$841,000 and emplaced them on a number of airfields within the United States. By June 30, 1965, other survivability construction projects costing an estimated \$27 million were almost completed.

To maintain Force effectiveness, the Air Force intensified its graduate pilot training program. The Combat Crew Training and Interceptor Weapons Schools were provided 38 additional aircraft. The active weapon firing program, halted in late 1963, was reinstated in March 1965, and ADC and ANG interceptor squadrons resumed their annual training sessions at designated test ranges.

For training purposes the Air Force joined with the Navy in modifying its obsolete BOMARC A's as drone targets for high performance aircraft. The first of these liquid-fueled target missiles was successfully intercepted in February 1965 by two F-101's and an F-106 within 5 minutes of its launch. The intercept took place at an altitude of 50,000 feet, with the BOMARC flying at more than 1,500 miles per hour. Because of the modest cost involved and an anticipated shortage of drones, the Air Force also began studying the possibility of modifying excess MACE A missiles to serve as target drones.

There were no significant changes in the operational BOMARC B missile program. However, training launches reduced the total interceptor missile force to 180 missiles. Each of the six Air Force and two Canadian squadrons successfully intercepted an airborne target with a BOMARC B during the year.

On September 17, 1964, the President announced that the Nation had acquired an important new aerospace defense capability. Two weapon systems were involved, one an Army system and the other an Air Force system. The Air Force system is operated by ADC crews and its capability to intercept and destroy satellites has been thoroughly tested.

Warning and Control

A major advance in warning systems was the over-the-horizon (OTH) radar, revealed by the President on September 17, 1964. Through the use of a forward scatter radar technique that bounces electronic signals between the earth and ionosphere over extremely long ranges, the system has detected ICBM launchings several thousand miles away within seconds of lift-off. The OTH system, as a supplement to BMEWS, will almost double the present 15-minute warning of an ICBM attack. The Air Force made plans to increase the number of OTH stations during fiscal year 1966.

Final work on the BMEWS sites at Thule, Greenland, and Clear, Alaska, neared completion. Total construction costs for the BMEWS system reached \$174 million. For a brief period in late June the Clear facility, after 2,065 hours of continuous operation, reduced its missile detection capability for purposes of preventive maintenance. During that time the other two BMEWS installations, at Thule and at Fylingdales Moor, England, remained fully operational.

In November 1964 the Secretary of Defense approved an Air Force proposal to improve the automated Back-Up Interceptor Control (BUIC) system. The goal was to double the capacity and area coverage of the BUIC. Funds for the improved system were included in the 1966 budget request.

During the fiscal year engineering responsibility for the Semi-Automatic Ground Environment (SAGE) system consisting of direction centers, long-range radars, and other command elements was transferred from AFSC to AFLC. In conformance with new radar criteria developed by NORAD, the number of long-range warning radars was reduced. Six were phased out before June 1965, with plans to eliminate another 11 during the next 2 years.

A special air defense problem involved detection and early warning of an enemy submarine-launch missile attack. To provide such warning, the Air Force proposed modifying certain long-range SAGE radars. Upon approval of the modification by the Office of the Secretary of Defense (OSD), the Air Force programed \$10 million for a sea-launched ballistic missile detection system. The Air Force solicited bid proposals from 32 firms and at the end of June 1965 contract negotiations were under way.

Air Force Spacetrack and Navy Space Surveillance Systems, the major components of NORAD's Space Detection and Tracking System (SPADATS), were continually monitored to avoid duplication and insure that the two systems remained entirely complementary. On January 5, 1965, the Spacetrack program suffered a setback when the FPS-85 phased-array radar at Eglin AFB, Fla., was damaged by

fire. Although the Air Force immediately began a combined restoration and improvement program, the initial operational date of July 1965 was set back some 18 months. Meanwhile, other components of Spacetrack continued to perform their tasks. At Cloudercroft, N. Mex., construction of a new optical surveillance and tracking sensor neared completion at the end of the fiscal year.

In mid-May the Air Force communication and electronic system for NORAD's underground Combat Operations Center in Cheyenne Mountain, Colorado Springs, Colo., successfully passed evaluation tests. This was the first exercise conducted with the Center's new automatic command and control equipment, communication data processing display, and computers. By June 30, most of the communication and electronic equipment had been installed in the mountain site. When NORAD moves into the Center in fiscal year 1966, the Cheyenne complex will represent an investment of \$92.5 million. Of this total, \$20.2 million were spent for development and engineering of the system, \$37 million for equipment, and \$35.3 million for construction. Testing of the operational capability of the entire complex was scheduled to start early in 1966.

A Single Radar System

In cooperation with the Federal Aviation Agency (FAA), the Air Force continued development of a single radar system to satisfy both air defense and civil air traffic control requirements. Particularly noteworthy was Air Force participation in development of equipment to be used in conjunction with FAA's first National Airspace System, Air Route Traffic Control Center, Jacksonville, Fla.

The Air Force and FAA reached a cost-sharing and technical specifications agreement for the procurement of 24 common radar data processors to be installed early in 1966. As the FAA progressed toward an automated air traffic control system, the concept of using FAA facilities to perform peacetime surveillance and identification appeared to be the best way to achieve a low, fixed-cost ground environment system. Although many problems remained, the Air Force and FAA could report major progress in equipping radars to satisfy future military and civilian needs.

V. Airlift Forces

MATS became increasingly involved in joint airborne training, air mobility combat exercises, and special assignment airlift. MATS crews flew some 60,000 hours in exercises with Army troops as compared with some 8,000 hours in fiscal year 1959. On April 1, reflecting the growing scale of airlift support to the Army, MATS assigned a full-time liaison officer to USSTRICOM headquarters at MacDill AFB, Fla.

MATS Operations

MATS relied heavily on commercial transportation for routine channel airlift. The cost of MATS contracts with civil carriers increased from \$192.5 million in fiscal year 1964 to \$231.3 million in 1965. Concurrently, MATS streamlined airlift contract procedures and negotiated lower minimum rates for passengers and cargo.

Shipment of priority military cargo improved. In the past, the Air Force transported cargo from a logistics center to a MATS terminal in the United States where it was unloaded, processed, and reloaded for oversea lift. Some MATS channel traffic flights began to depart directly from Kelly AFB, Tex., for their oversea destinations. This new procedure cut transit time in half and significantly increased the tonnage of cargo airlifted.

The following table reflects both commercial and military airlift of MATS cargo, mail, and passengers during fiscal year 1965:

	Passengers	Cargo-mail	Total
Ton-Miles Flown (Channel Traffic):			
Military	105, 000, 000	617, 600, 000	722, 600, 000
Commercial	379, 700, 000	341, 600, 000	721, 300, 000
Total	484, 700, 000	959, 200, 000	1, 443, 900, 000
Tons Carried (Space Assigned Channel Traffic):			
Military	34, 400	187, 400	221, 800
Commercial	90, 800	66, 000	156, 800
Total	125, 200	253, 400	378, 600

Because of a greater demand for airlift in the Pacific area, MATS redesignated two C-124 troop carrier squadrons at McChord AFB, Wash., as air transport squadrons and authorized them to double their daily utilization rate to 5 hours. To offset this change, two east coast C-124 transport squadrons were redesignated troop carrier squadrons.

MATS also improved its aeromedical evacuation capability within the United States by replacing four C-131's with the larger C-118's. To meet the rising oversea needs of the three Services, MATS increased the number of its aeromedical evacuation flights from Clark AB in the Philippines. C-135 transports which flew passengers and cargo from the United States were used for this purpose.

By the end of the fiscal year, AFRes C-124 heavy troop carrier units flying overwater training missions completed more than 150 flights over MATS routes for a total airlift of more than 11 million ton miles to South Vietnam, Japan, Thailand, and the Philippines. Seven ANG transport wings with 25 squadrons also were assigned to the direct support of MATS. Together with the AFRes units, they flew more than 1,600 missions totaling 71,990 hours and participated in a large number of operations and exercises.

In the first 15 days of May 1965, MATS flew approximately 116 missions in the USSTRICOM Exercise SILVER HAND at Fort Hood, Tex., airlifting Army troops and cargo and furnishing necessary aeromedical evacuation flights. From June 9-27, MATS supported the joint Army-Air Force Exercise NORTHERN HILLS under the direction of the Alaskan Command.

Starting on April 29, MATS participated in the emergency operations arising from the crisis in the Dominican Republic. By May 4, Air Force transports had flown more than 1,000 sorties, carrying 11,300 persons and 8,700 tons of equipment, food, and medical supplies. By the end of the month, MATS units, along with airlift elements of TAC and AFRes, had completed more than 2,100 sorties, transported some 20,000 passengers, and carried 18,781 tons of cargo.

Also in May, the United States and Canada signed an airlift agreement which provided for the use of either country's fleet under emergency conditions, the choice depending on the geographical area of the airlift mission or the proximity of available transport aircraft.

Continuing to provide humanitarian emergency airlift on a global scale, MATS in late October 1964 delivered more than 20 tons of medical and relief supplies for flood victims in Zagreb, Yugoslavia. In December the Air Force participated in another important humanitarian operation to help replace facilities damaged by floods in Tunisia. Fourteen C-130's transported 50 engineers and 162 tons of bridge-

building materials and equipment from Ramstein, Germany, to El Aouina Airport in Tunis.

At the request of the U.S. Agency for International Development, on January 14, 1965, MATS airlifted 110 tons of wheat from Khartoum, Sudan, to Mogadiscio, Somali Republic. On May 3, MATS airlifted more than 55 tons of medical supplies and shelter facilities for the earthquake victims of San Salvador. Units participating in this relief operation, conducted by USAFSO, were the 1611th and the 1608th Air Transport Wings, assisted by a MATS-assigned naval air transport squadron.

During the fiscal year AFRes C-119's and C-124's flew more than 1,200 hours in support of various disaster relief operations within the United States. In cooperation with the ANG, they carried out the largest humanitarian airlift in their history during the New Year holiday season by transporting 1,406 tons of food, fuel, medicine, sandbags, jeeps, road graders, heaters, and dog sleds complete with teams to the flood-ravaged communities of the Pacific Northwest.

On October 15, 1964, MATS began its eighth consecutive yearly support of Operation DEEP FREEZE with the landing of a C-130E on a 6,000-foot ice runway, 7 miles from the Navy outpost at McMurdo Station, Antarctica.

MATS Aircraft

Modernization of the airlift forces continued. By June 30, 1965, the MATS fleet consisted of 577 aircraft of which 550 were four-engine transports.

Four AFRes troop carrier groups flying C-119 or C-123 aircraft were scheduled to receive the larger C-124's early in fiscal year 1966, with one group at McClellan AFB, Calif., actually beginning conversion in June.

A number of unexplained C-133 crashes, which reduced MATS' original fleet of these aircraft from 50 to 41, induced the Air Force to ground them in January 1965. After several safety modifications, the planes resumed flying in May. Although the C-133's are among the Air Force's principal large carriers, they have had a history of expensive modification and costly maintenance. Consequently, the Air Force decided to reduce their number as other aircraft entered the MATS inventory.

On October 19, 1964, the first C-141 Starlifter cargo transport aircraft was turned over to MATS for training purposes at Tinker AFB, Okla. Capable of flying at average cruising speeds of more than 500 miles an hour, the 150-ton four-engine aircraft has a range of nearly 4,000 statute miles carrying 63,000 pounds of cargo. At reduced speeds and payloads, its range exceeds 5,200 miles, the distance from San

Francisco to Tokyo. On over-ocean missions, it can transport up to 120 fully equipped combat troops, while its short takeoff and landing characteristics permit it to use airports in all parts of the world. The C-141 received its FAA certification as a commercial air freighter on January 29, 1965.

On April 23, a C-141 joined the MATS operational airlift force at Travis AFB, Calif. By the end of the fiscal year, 32 C-141's had been delivered to the Air Force. Of these, eight were still undergoing testing, one having flown a total of 5,282 hours. Among these tests were a January cold weather exercise in Alaska at temperatures of -45° F. and an adverse weather test, a month later, at Wright-Patterson AFB, Ohio. Intensive testing provided significant data on aircraft performance which produced savings of millions of dollars in postproduction modifications.

On June 30, at El Centro, Calif., the C-141 set an unofficial world's record for weight dropped by parachute with the successful delivery of two pallets totaling 64,630 pounds. Conducted by contractor crews with the cooperation of the Air Force, Army, and Navy, the El Centro tests were in preparation for joint Army-Air Force exercises aimed at testing paratroops of Army vehicles, equipment, and troops.

During fiscal year 1965 the Air Force installed in its C-141's a Crash Position Indicator (CPI) which also was added to the C-133's while that fleet was grounded. In addition, the Air Force decided to proceed with development of a C-141 all-weather landing system, proposing a joint Air Force-FAA prototype test program. To enable the C-141 to airlift MINUTEMAN missiles from contractor plants to the launch sites, minor modifications were programmed for 32 of the aircraft.

The C-141 is the first aircraft to include the new 463L materials handling system as part of its design. Its cargo compartment is fitted for pallets, with rollers and retaining rails that can be retracted into recesses. The compartment's clamshell doors open to provide for straight loading or unloading at truck-bed level. As a result, unloading of over 60,000 pounds of cargo, reloading, and refueling of a C-141 can be accomplished in less than 1 hour.

The 463L system is part of a \$60 million program designed to improve cargo transport and handling. Employing automated and mechanized equipment, through the use of roller conveyors it moves standard-size pallets of cargo directly from the freight terminals into the aircraft. During the fiscal year the Air Force began to install the system in MATS freight terminals and on other aircraft in the fleet. Additional requirements for 463L equipment were generated by increasing military activities in Southeast Asia. Some 7,000 pallets were ordered and delivery was expected to start in July.

As part of the 463L system, the Air Force continued development of an Air Transportable Terminal (ATT) consisting of mobile material-handling equipment, loading docks, and gantry cranes. Used at forward resupply bases or in the role of an assault-mission terminal, the ATT will greatly increase Air Force capability for support of ground operations.

A major event which will affect the airlift forces in the future was the decision announced by the Secretary of Defense on December 22, 1964, to develop a heavy logistics transport (C-5A). Scheduled to become operational during fiscal year 1969, the C-5A is designed to carry a payload of 250,000 pounds, about three times that of the C-141. The dimensions of its cargo compartment will enable the plane to carry all types of equipment for a combat division or to ferry 600 troops 5,000 miles at about 550 miles per hour. Like the C-141, the C-5A will be geared to the 463L system. It will also be able to land on forward airstrips of less than 4,000 feet.

The vastly increased procurement of transport aircraft, averaging some \$400 million annually during the last 3 years, had already more than doubled the 1961 airlift capability. The decision to spend some \$2 billion on procurement of 3 C-5A squadrons, totaling 58 aircraft, added to the incoming fleet of C-141's, should give the airlift forces a further significant increase in capability over that of 1961.

Assault Airlift Aircraft

In addition to the MATS airlift fleet, certain assault airlift aircraft are assigned to TAC. This TAC airlift force was modernized and expanded by equipping three squadrons with C-130E's and three new squadrons with available C-130B's. On June 30, the TAC airlift force included 4 C-130A, 6 C-130B, and 10 C-130E squadrons.

Production of the C-130E, TAC's primary assault airlift aircraft, remained on schedule with 77 aircraft accepted during fiscal year 1965. Out of a total planned procurement of 307 aircraft, 305 C-130E's had been accepted by the end of the period. The Air Force also planned to consolidate under TAC all C-130E's assigned to MATS.

VI. Specialized Operational Forces

Four unique Air Force organizations are the Air Weather Service (AWS), Air Photographic and Charting Service (APCS), Air Rescue Service (ARS), and Air Force Communications Service (AFCS). With the exception of AFCS, all are subcommands of MATS, but their functions are separate and distinct.

Air Weather Service

With 11,500 personnel at 394 locations in 29 different countries or islands, the AWS operates a worldwide weather network for the military Services as well as other Government agencies. During fiscal year 1965 AWS personnel made 2.5 million surface observations and 47,000 upper air observations. In turn, forecasters provided 2.4 million briefings for aircraft operations and 7.7 million specialized and planning briefings. About 500,000 pilot-to-forecaster reports were made and 62,000 weather warnings issued, twice the number of the previous year.

AWS continued to operate its year-old meteorological rocketsonde network, increasing the number of rocket probes from 272 in fiscal year 1964 to 1,683 in fiscal year 1965. AWS also received the first of 43 new cloud radar sets capable of identifying cloud heights at altitudes up to 60,000 feet. Concurrently, new techniques were developed in weather prediction and the analysis and forecast of tropical winds.

With activation of a new high-speed automated network, the Air Force improved its collection of foreign weather data and its relay to the AWS Global Weather Central at Offutt AFB, Nebr. Keyed to three computer-controlled relay centers located at High Wycombe Air Station, England, Fuchu Air Station, Japan, and Tinker AFB, Okla., the new network mainly supports urgent military requirements. It also assists other U.S. weather and meteorological systems and will do the same for the proposed world weather system being considered by the United Nations.

In December 1963 AWS became responsible for space environmental support, an extension of its atmospheric forecast mission. During fiscal year 1965 daily forecasts of solar radiation activity were supplied to 24 agencies. AWS also increased the number of its short-

range forecasts of solar flares hazardous to manned space flights. DoD established an Air Force-managed Joint Meteorological Satellite Program Office to coordinate all military requirements for meteorological satellites.

The AWS weather reconnaissance and aerial sampling force of 56 aircraft (12 RB-57F's, 5 RB-57B/C's, 4 WB-50's, 24 WB-47's, and 11 WC-130's) flew 400 missions per month in its continuing radioactivity detection program for the Atomic Energy Commission (AEC) and in support of Air Force and Army operations.

The requirement to provide complete weather support to ANG flying units during field training exercises was transferred from AWS to ANG weather units. Twelve ANG units trained by augmenting active Air Force units while the remaining 19 supported ANG field training.

AWS increased its support of Southeast Asia operations by dispatching additional personnel and equipment to the area to provide a 24-hour operating capability. Teams of weather observers and forecasters were assigned to the special air warfare forces. The yearly training of some 45 Vietnamese and Thai weather specialists in U.S. schools was continued. The Vietnamese Air Force (VNAF) and Civil Meteorological Agency were provided assistance in establishing a weather observation school and translating technical meteorological manuals into Vietnamese.

Air Photographic and Charting Service

The APCS, with some 5,700 personnel, continued its worldwide photomapping and aerial geodetic survey programs. Its major activities were conducted in South America, Ethiopia, and the Southwest Pacific.

In the photomapping field, an aerial survey team equipped with RC-130's and operating from Sao Paulo, Brazil, completed about 500,000 square miles of cartographic photography. APCS participated in GOLD FLASH, a joint civilian and military geodetic satellite project which makes use of the flashing lights of the ANNA 1-B satellite to provide data to PC-1000 stellar cameras operated by crews deployed to sites in the Caribbean and southeastern United States. APCS continued to evaluate other optical and electrical satellite data-gathering systems for geodetic purposes.

Another aerial survey team, equipped with four RC-130's, three HH-43's, and two CH-3C's, was assigned to Asmara, Ethiopia. The team was to cover over 400,000 square miles of photomapping and complete a geodetic survey of Ethiopia.

Continuing its aerial electronic surveys called HIRAN Trilateration, APCS deployed a 150-man team, three RB-50's, one C-54, and two Navy LSTs with helicopters to Eniwetok in the Marshall Islands. The teams surveyed territory from Australia and New Guinea to the Marshall Islands and south of the Fiji Islands. All assigned surveys neared completion by the end of the fiscal year.

The Air Force decided to purchase 24 additional CH-3C's, bringing its total to 74, of which 30 had already been delivered. APCS also required three C-118's to replace three C-54's and awaited delivery of its first RC-135.

Air Rescue Service

Since its founding in 1946 the ARS has rescued 12,233 people and saved 88 aircraft. In more than 92,000 missions and 600,000 flying hours, the ARS has assisted an additional 54,000 persons and nearly 60,000 aircraft.

During fiscal year 1965 ARS with some 3,500 personnel, operating a mixture of 250 aircraft and helicopters from 87 worldwide locations, flew an increasing number of search, rescue, and recovery missions. Approximately 300 ARS personnel participated in Southeast Asia operations and flew more than 6,500 missions totaling some 12,000 hours. ARS HU-16 amphibious aircraft conducted rescue operations in the open sea while HH-43 helicopters flew through enemy fire to rescue 23 aircrews.

At the beginning of the fiscal year the fleet included three squadrons equipped with HC-97's and nine with old HC-54's. The latter aircraft were scheduled to be phased out of the inventory in fiscal year 1966 and the units reequipped with new HC-130H's. One AFRes rescue squadron at March AFB, Calif., and another squadron at Selfridge AFB, Mich., originally scheduled to receive HC-54's, will instead be equipped with HC-97's. Three other AFRes squadrons, located at Portland International Airport, Ore., Luke AFB, Ariz., and Homestead AFB, Fla., will be equipped with HU-16's.

In October 1964 the first operational HC-130H was delivered to the Air Force and at the end of the fiscal year activation of the first squadron was imminent. The HC-130H, a C-130 Hercules transport plane specifically modified for search, rescue, and recovery operations, has more powerful engines and a longer range than conventional C-130's. It also has specialized electronic and communication equipment and includes a new recovery apparatus that makes it possible to retrieve personnel from virtually inaccessible sea or land areas.

For support of various NASA projects—another aspect of ARS activity—the HC-130H includes ultra-high frequency tracker equip-

ment which gives the precise bearing of a spacecraft as it reenters the earth's atmosphere.

New actions were taken to improve ARS crash and survivor-locator devices. Crash position indicators (CPIs) were installed in MATS aircraft that fly oceanic routes, and search aircraft were equipped with more sophisticated electronic searching devices and droppable light markers. Improved survival flares, automatically actuated personnel locator beacons, better survival radios, and a new type of hand-held strobe light were also procured.

Air Force Communications Service

Established as a separate command on July 1, 1961, the AFCS continued to operate and maintain communications, air traffic control services, and air navigational aids for Government and civilian agencies while supporting the operation of the Defense Communications Agency (DCA). AFCS kept about 60 percent of its 50,000 personnel at oversea locations. At the same time, it significantly increased its support of U.S. operations in Southeast Asia. The ANG and AFRes supported AFCS operations with 60 nonflying units and 1 ANG C-97 "Talking Bird."

In May 1965 AFCS technicians deployed to the Dominican Republic to assist in the movement of U.S. troops and equipment. They successfully demonstrated the capability of the relatively new "Talking Bird" communication system for the first time in an emergency. Less than 1 hour after arrival at San Isidro AB, the C-130 "Talking Bird" teams had established voice communications with TAC headquarters at Langley AFB, Va.

During the fiscal year AFCS supported such exercises as POLAR STRIKE in Alaska, QUICK KICK VII in the Caribbean, and SILVER HAND in Texas, as well as NASA's GEMINI flights.

A forward step was taken in the long-term modernization of the Defense Communications System (DCS), when in late 1964 BIG RALLY II, an interim communication subsystem of the Air Force Mediterranean Communications System (486L), became partially operational. Through the long-haul telecommunication circuits of the DCS, 486L linked military centers in Italy, Greece, and Turkey to the United States. Interim operation of the 486L trunkline from Spain to eastern Turkey was expected in fiscal year 1966.

In December 1964 a new communication link between South Vietnam and the Philippines became operational. A part of the Pacific Communications System, it consists of 800 miles of submarine cable which provides a 60-voice channel. Microwave and tropospheric scatter systems connect the cable landing points with stations at Clark

AB, the Philippines, and Saigon. Two other subsystems—the Johnston Island/Hawaii communication system and the Kanto Plains (Japan) microwave system—also neared operational status.

The Alaska Communications System, acquired from the Army in July 1962, presented a special problem to AFCS since it served both military and public communication needs in that part of the country. Moreover, disposal of any part of the system required Congressional authorization. DoD stopped modernizing the equipment pending a decision on the possible assumption by a common carrier of the commercial portion of this extensive communication system.

The Automatic Digital Network (AUTODIN), a data-transmission network transferred from Air Force to DCA in February 1963, remained under Air Force operational management. The Air Force began expanding the 550-line system to 2,700 lines while transferring teletype traffic from the DCS teletype network to AUTODIN. Some \$20 million was reprogramed to buy more sophisticated AUTODIN terminal equipment.

In February 1965 a 3-year joint effort by DCA, the Air Force, and FAA was completed when the last FAA tributary station was connected to the DCS teletype network through relay centers, most of them operated by AFCS. To support this new national capability—which will be incorporated into AUTODIN—the Air Force provided FAA with distribution channels, accounting and logistical support, and cryptographic training.

In May, in support of the National Military Command System and the DCS, the Air Force began testing the prototype Secure Voice Communications (SEVOCOM) System (493L) that now serves as the interior AUTO SEVOCOM of the DCS. The operational system is composed of switches located at the Pentagon, Colorado Springs, Colo., and Camp Des Loges, Paris, France. Meanwhile, the Air Force Interim Command and Control System made progress with the installation of general purpose computers at TAC, MATS, ADC, and USAFE headquarters to support information requirements of the operating commands and the Department of the Air Force. Operational capability was achieved in March 1966.

Updating of communication systems included further development of the Soft Talk System, which provided teletype and secure voice communications between the White House, the National Military Command Center, VOCOM, various other designated subscribers, and Special Air Mission aircraft. The system's capacity, however, was limited by the lack of ground relay stations. At the end of the fiscal year, the number and locations of the future stations had not been definitely established.

AFCS air traffic controllers were credited with saving 103 aircraft with 392 persons aboard. The value of these aircraft exceeded \$100 million. The Air Force continued to improve AFCS air traffic control capability. It accepted three complete subsystems as part of the Emergency Mission Support System (482L), which is a collection of air transportable lightweight air traffic control and landing equipment for use at airstrips where existing facilities are inadequate. A joint Air Force-FAA air traffic control improvement project was completed in the Canal Zone, Panama, which included installation of a ground-control approach tower at Howard AFB, various long-range and terminal radars, and two high-powered radio beacons.

VII. The U.S. Air Force in Vietnam

In South Vietnam the United States intensified its efforts to bolster that country's government against the armed aggression of the Viet Cong (Vietnamese Communist) insurgents, who were supported by men and supplies infiltrated from North Vietnam.

The Air War

In 1961, when the insurgents stepped up their efforts, the United States supported the Republic of South Vietnam by sending additional military assistance and combat advisers. American airmen trained the small VNAF in the use of airpower. As part of this training, they flew combat training missions with VNAF personnel against Viet Cong targets. Air commandos escorted assault airlift, helping to suppress enemy ground fire. By providing forward air control, air rescue, and air-to-ground communications, they also supported U.S. and Vietnamese special forces operating in areas controlled by the Viet Cong.

The initial Air Force detachment deployed to South Vietnam, nicknamed "Farmgate," was later redesignated the 1st Air Commando Squadron. The commandos served under the 2d Air Division, a subordinate unit of the 13th Air Force and operational component of the Military Assistance Command, Vietnam (MACV). In July 1965 the division was assigned directly to PACAF and became the air command for all Southeast Asia under Military Assistance Command, Vietnam/Thailand.

Air Force activities in South Vietnam reached a new pitch of intensity as the Viet Cong and their allies increased their insurgency efforts. On August 2 and 4, 1964, North Vietnamese gunboats struck at the U.S. Seventh Fleet in the Gulf of Tonkin, and the U.S. Navy retaliated by bombing these vessels and their supporting facilities in North Vietnam. At that time, U.S. jets, Navy and Air Force, were authorized to pursue and destroy any attacking aircraft.

North Vietnam steadily increased its infiltration of men and supplies into South Vietnam in support of the Viet Cong aggression. In November 1964 Viet Cong mortar attacks destroyed 5 B-57's and damaged 15 others. On February 7, 1965, the Viet Cong attacked

Pleiku AB and other American sites. The United States responded with air attacks on North Vietnam. As these attacks expanded, Air Force B-57's, F-100's, and F-105's, together with U.S. Navy and VNAF A-1H's, began striking carefully selected targets north of the 17th parallel.

On February 19, the Air Force also used F-100 and B-57 jets for the first time in South Vietnam to repulse a Viet Cong attack. In early April, U.S. F-105's and Vietnamese aircraft destroyed three bridges and damaged the bridge approaches in an attack on the transportation system used by the North Vietnamese to support guerrilla operations. An indication of the importance of these bridges to the North Vietnamese was the heavy antiaircraft defenses emplaced around them and the first appearance during the strike of MIG interceptors. On June 18, SAC's B-52 bombers struck Viet Cong targets in the south for the first time.

Air Force Achievements

Aerial warfare in South Vietnam challenged the ingenuity of U.S. airmen. Major problems encountered included sighting, identifying, and marking targets. Targets were selected, identified, and verified by the Vietnamese, and strike crews did not attack until positive visual contact had been established and forward air controllers had marked the targets. Since control of an area changed hands frequently, airmen seldom found targets of opportunity.

The terrain of South Vietnam also was a major factor affecting the air war. Over mountainous regions, pilots had to fly at treetop level to get in and out of target areas and drop zones. Over the jungle, airmen had to find ways to use munitions effectively against an enemy concealed and protected by dense vegetation.

Despite these difficulties, air operations in South Vietnam demonstrated the effectiveness of mobile, airborne firepower against relatively small, concealed, and widely dispersed enemy forces. Air Force and VNAF aircraft helped destroy enemy forces and positions, broke up Viet Cong attacks, and provided a lifeline of food and supplies to Government troops. Air strikes against vital bridges, infiltration routes, and military installations in North Vietnam made it far more difficult for that country to provide effective support to the insurgents in South Vietnam.

USAF tactical strength in South Vietnam was considerably augmented. The number of fighters and bombers more than tripled, and the number of light reconnaissance aircraft in Air Force and VNAF units more than doubled. The number of air strikes against the Viet Cong increased more than 10 times as the sortie rate for Air Force and VNAF aircraft rose steadily.

When air strikes were required, forward air controllers flying Air Force O-1 aircraft marked targets with smoke grenades or rockets and then directed air attacks by radio. At Army corps or division headquarters, the air liaison officer coordinated the over-all effort. The Air Force almost quadrupled the number of forward air controllers and air liaison officers in South Vietnam during the fiscal year. The USAF and VNAF, responsible for equipping and manning the air request net, introduced new procedures and better equipment that reduced to minutes the time between a call for assistance and a response by an air unit.

The performance of USAF air commando units was outstanding. Between August 1964 and April 15, 1965, they flew 6,700 A-1E aircraft missions; 3,763 C-47 sorties; airlifted 2,187,000 pounds of cargo and 16,862 passengers; and airdropped 1,000,000 pounds of cargo and 1,120 troops. In addition, they flew 1,600 U-10 psychological warfare sorties, broadcasting over loudspeakers and dropping leaflets.

The Air Force provided most of the airlift for Vietnamese and U.S. military forces, as well as for part of the civilian economy of South Vietnam. Air Force transports, mostly C-123's, airlifted more than 67 million pounds of cargo and nearly 127,000 passengers. The planes moved cargo between depots and airfields throughout the country; dropped supplies to outposts, garrisons and isolated communities; and ejected paratroops. C-47's and C-123's ejected flares to illuminate areas under Viet Cong attack. Transports also were used to spray harmless commercial weedkiller in defoliation operations to deprive the Viet Cong of jungle cover. The 315th Air Commando Group, with only one major accident during calendar year 1964, received the PACAF tactical flight safety award.

The airlift of supplies and passengers to Southeast Asia increased significantly. Between July 1964 and January 1965 MATS airlifted 12,037 tons, flying 74.6 million ton-miles. This approached the quantities moved during all of the preceding 12 months. The number of passengers carried to South Vietnam rose to about 35,000 in fiscal year 1965, 10,000 more than the previous year.

ANG units using C-121's and C-97's and AFRes units using C-124's augmented MATS trans-Pacific airlift to Southeast Asia. In addition to delivering needed cargo to the Far East, the reservists gained valuable experience and proficiency flight training.

Air Force training of VNAF pilots in South Vietnam relied heavily on two-seater (side-by-side) A-1E's flown under combat conditions. Training consisted of three concurrent phases: Day and night strikes in close air support of ground troops, escort of troop-carrying helicopters engaged in assault operations, and interdiction strikes. When fully trained, VNAF pilots were assigned to operational squadrons. Air Force advisers assisted these squadrons.

The Air Force also trained VNAF pilots in T-28, O-1, and C-47 aircraft and provided training for forward air controllers and Tactical Air Control System controllers. Nonflying VNAF personnel were taught various support functions such as aircraft maintenance and munitions handling.

Air Force Aircraft in Southeast Asia

Some 25 different types of aircraft, ranging from World War II propeller aircraft to modern jets, were flown by the Air Force in Southeast Asia. The oldest was the venerable C-47 "Gooney Bird" transport. Although it first flew in 1935, it was still of value for tactical airlift. The A-1E, a piston-engined aircraft, flew close air support and interdiction missions. Early in the year the Air Force accepted 83 modified A-1E's from the Navy, 65 of which were assigned to PACAF. In December 1964 the Navy agreed to modify and transfer to the Air Force an additional 86, beginning in June 1965. Twenty-two of these were scheduled to go to the VNAF and 31 to PACAF.

Jet aircraft in South Vietnam included B-57's and F-100's for close support and interdiction; F-105's for tactical air strikes; F-102's for air defense alert; and RF-101's for photo-reconnaissance. The newest and fastest jet fighter, the F-4C, considerably strengthened the Air Force tactical air arm in South Vietnam.

The O-1, formerly the L-19, was used primarily for light reconnaissance. Of 121 modified O-1's acquired from the Army, 106 O-1E's went by surface transportation to Southeast Asia and 10 O-1F's were airlifted.

C-123's and C-47's were essential elements of the theater airlift system. They airdropped combat cargoes and transported troops. In air commando operations, they illuminated areas under attack by the Viet Cong by dropping flares. U-10 utility aircraft flew loud-speaker and leaflet sorties.

Ordnance

The Air Force made a major effort to provide its forces in Southeast Asia with improved ordnance and munitions as quickly as possible. It furnished better fragmenting cluster bombs, incendiaries, and aerial guns. Improved 250-pound and 500-pound bombs were used in South Vietnam. The Air Force purchased in quantity a new fuze and warhead for the 2.75-inch rocket, an air-to-air weapon that was redesignated for air-to-ground warfare. A new item purchased for use in South Vietnam was an aerial gun which fired at a rate of 6,000 rounds per minute, carried more ammunition than the gun previously used, and was one-fourth the weight.

Supporting the Air Force Buildup

The Air Force budget for fiscal year 1965 originally contained \$69.7 million for operations in Southeast Asia. Subsequently, the Air Force reprogramed an additional \$298.1 million for this purpose. In May Congress approved a DoD supplemental appropriation of \$700 million, of which \$231 million was the Air Force share. As a result, Air Force fiscal year funds for Southeast Asia operations totaled \$598.8 million.

The Air Force programed \$61.6 million for construction projects in direct support of Southeast Asia operations. The first increment of \$14.8 million was approved by the Secretary of Defense and \$12.6 million of this amount was obligated by June 30, 1965. The second increment of \$41 million, using supplemental funds, was approved on May 27, 1965, and \$33.2 million of this amount had been obligated by the close of the fiscal year. In addition to these programs, the Air Force obligated \$2.2 million for various minor construction projects and reprogramed \$3.6 million for ammunition storage facilities.

The Air Force buildup in Southeast Asia required expansion of airfield pavements, flight-line maintenance facilities, and airbase cantonments at Da Nang, Bien Hoa, Tan Son Nhut, and Nha Trang in Vietnam. Additionally, construction of a new airfield at Cam Ranh Bay was begun. The first phase of the Cam Ranh Bay project involved construction of a 10,000-foot runway built of aluminum mats. Airbase maintenance, operational and cantonment facilities, consisting initially of tents and inflatable shelters, were erected. Permanent-type facilities and a concrete runway were scheduled for construction in fiscal year 1966.

The AFLC set up an aerial resupply priority system for Southeast Asia which enabled PACAF to obtain urgently needed items by airlift. These procedures proved so effective that they set the pattern for future contingency operations.

Because of the stepped-up tempo of activities in Southeast Asia, the consumption of jet fuel during the year increased about ninefold. To meet the greater demand, the Air Force, in cooperation with the other Services, initiated a rapid expansion of the resupply system. Additional facilities, such as storage tanks, were constructed in the area.

During bad weather lack of proper shelter seriously handicapped logistical operations in South Vietnam. In June 1965 the Air Force contracted for single-wall and double-wall inflatable shelters that were transportable by air and could be erected quickly and easily. They were designed to provide enough covered space for maintenance of fighter aircraft, critical components, ground equipment, ammunition, and war readiness materiel.

VIII. Personnel and Manpower

Manpower requirements reflected such changes in Air Force structure as elimination of certain strategic weapon systems from the inventory, reduction of air defense forces, and modernization of the airlift fleet. Base closures and increased productivity of each member of the Air Force also resulted in reduced manpower requirements. Other adjustments were caused by personnel transfers or assignments to the Defense Supply Agency (DSA) and NASA.

Manpower Strength

Air Force active military manpower strength decreased by 32,136—from 856,798 (133,389 officers and 723,409 airmen) on June 30, 1964, to 824,662 (131,578 officers and 693,084 airmen) a year later. At the end of the fiscal year, 22,257 officers and 166,975 airmen were serving overseas.

Ready Reserve manpower strength increased during this period by 19,279—from 250,639 to 269,918 (ANG, 76,410; AFRes, 193,508). ANG strength grew by 3,193, AFRes by 16,086. Standby Reserves totaled 141,341, showing a gain of 11,438. The increase in Ready Reserve strength was achieved despite the elimination of AFRes recovery units—203 squadrons manned by some 18,600 persons.

The number of civilians on Air Force rolls (excluding about 3,200 temporary summer employees) decreased from 289,700 to 288,300. Reflecting the impact of technological changes on Air Force operations, the percentage of salaried (white collar) employees rose during the past decade from 42 to 54 percent, while Wage Board (blue collar) employees fell from 58 to 46 percent. In fiscal year 1965 the number of foreign nationals employed indirectly through contracts or agreements with other governments declined by 2,350, to 30,350. Turnover of full-time civilian employees was small; the accession rate rose from 1.4 to 1.7 percent, and the separation rate from 1.6 to 1.7 percent.

Greater use of automatic data processing equipment (ADPE) enabled the Air Force to match people with jobs more accurately. Verified management engineering standards permitted more precise calculation of the number of people needed to do a given amount of work in a specific unit. By the end of the year the Air Force had established

manpower standards for about 2,800 work centers employing more than 300,000 people.

By emphasizing manpower controls, the Air Force kept a major portion of its military personnel in operational functions. Utilization of military manpower by function on June 30, 1965, was:

	Number	Percentage
Operations.....	570, 666	69. 2
Support.....	142, 667	17. 3
Training.....	109, 680	13. 3
Miscellaneous.....	1, 649	. 2
Total.....	824, 662	100. 0

Officers

The Air Force has a higher ratio of officers to enlisted men than the other Services, partly because of the need for a large number of pilots, missile-launch officers, and other technical and scientific specialists. To bring this ratio into better balance, the Air Force had reduced the number of adjutant, transportation, and supply officers in the past 3 years and filled some of these positions with noncommissioned personnel. The demand for officers, however, was increased by operational changes. For example, the conflict in South Vietnam and replacement of one-seated fighters by two-seated F-4C's and F-111A's required more officers. The Air Force, therefore, requested deferral of any further officer reduction. An Air Force board also selected 775 rated officers not on flying status for return to aircrew or related duties by June 30, 1967.

The lack of opportunities for promotion to field grades continued to affect officer retention. Air Force officials believed that the limited opportunity for advancement caused many promising young officers, especially those with scientific and technical training, to leave the Service. In 1963 the Congress enacted legislation authorizing the addition of 4,000 lieutenant colonel spaces to the statutory limit for June 30, 1963, to June 30, 1965. In May 1965 the House of Representatives approved and sent to the Senate legislation which would further raise the statutory limit for the period July 1, 1965, to June 30, 1966.*

The officer retention rate fell somewhat below that of the previous year, with approximately half the officers staying on past their first

*Note: The Senate passed an amended version in August 1965. This bill, signed into law on August 31, 1965 (PL 89-157), authorized the Air Force to have about 1,100 colonels and 5,400 lieutenant colonels above the statutory limit for the period July 1, 1965, to June 30, 1966.

tour of duty. Only about 20 percent of men trained in scientific fields chose an Air Force career. The Air Force attributed the continued loss of such trained and experienced people partly to inadequate housing and pay as well as to the lack of promotion opportunities. Air Force studies also showed that military compensation had not kept pace with that of industry.

Airmen

The Air Force enlisted 86,022 airmen, excluding those for Officer Training School (OTS)—81,783 without previous service, 2,241 with previous service, and 1,998 women. This fell 3,649 short of the goal of 89,671 enlistments set in December 1964. The educational level of the first-term airmen has increased significantly during the past decade. The percentage of high school graduates has risen from 49.7 during fiscal year 1955 to 84 percent in 1964 and 91 percent in 1965.

Since 1959 the number of airmen qualifying for proficiency pay has increased from 19,000 to 74,584. Although some airmen with lower priority skills lost proficiency pay during fiscal year 1965, the number drawing the higher P-2 rate (\$60 per month as compared with \$30 per month for P-1) increased from 17,000 to 35,800. By 1967 the Air Force hopes to extend proficiency pay to other highly skilled technicians not yet drawing it.

A policy of basing promotions primarily on seniority will not insure advancement of the most able airmen to the senior ranks. By instituting tight controls, the Air Force was able to channel a larger portion of promotions into specialties where the need was greatest. In fiscal year 1965 the top six grades comprised 59.6 percent of airman strength. This percentage was scheduled to be increased to 61.6 for fiscal year 1966, providing more noncommissioned officer promotions than have been available for several years. Many airmen nevertheless still considered advancement opportunities to be insufficient.

The number of airmen assigned to the Pacific rose sharply. A special manning office was established on April 5, 1965, to speed their movement. The demand of the Southeast Asian conflict and the increase in general purpose forces created critical shortages of specialists for munition and weapon maintenance in the United States. Skilled airmen also were in short supply for assignments in intelligence, photoprocessing, communications, and command and control specialties.

Women in the Air Force

The total strength of the Women in the Air Force (WAF) fell slightly—from 5,567 at the end of June 1964 to 5,450 a year later.

This total included 709 officers and 4,741 airmen, a decrease of 13 officers and 104 airmen. Enlistments during the year met the objective of 2,000.

Family Housing

Inadequate family housing continued to plague the Air Force; by Air Force standards about 78,300 officers and airmen were improperly housed. Approximately 100,000 lower grade married airmen needed better family housing at rentals they could afford to pay.

During the fiscal year, 2,173 new housing units, built with appropriated funds, were completed in the United States and 750 overseas. Still under construction by the end of June 1965 were 2,260 units from appropriated funds and 408 units being paid for by the sale of surplus commodities overseas.

The Air Force continued to build townhouse and garden-type apartments wherever they were most economical and suitable. A new two-story Air Force design, based on the highly successful one-story relocatable house, can be erected for two, four, or six families. For the fiscal year 1965 program, OSD approved use of the two-story USA-HOME III relocatable house. At the close of the period invitations for bids were being prepared on 292 USAHOME III units.

Despite shipping delays caused by the Southeast Asian conflict, 250 relocatable housing units approved last year for Clark AB, the Philippines, were delivered, erected, and occupied. Within the United States, 985 relocatable units were erected at 13 installations.

Contracts were awarded for new family housing, including 150 duplex units at Vandenberg AFB, Calif.; a 100-unit high-rise apartment building at Langley AFB, Va.; a 200-unit terrace apartment building at Laurence G. Hanscom Field, Mass.; 200 housing units at two overseas bases; 1,649 townhouse units at nine U.S. bases; and 100 units of conventional housing at Hickam AFB, Hawaii. The Air Force also let contracts of about \$2 million to improve, alter, and repair older quarters to bring them up to adequate standards.

The Air Force awarded contracts for four trailer courts containing 234 units in the United States and a 250-unit court at Incirlik AB, Turkey. Work on both projects was well underway at the end of June. About 2,000 trailers originally bought for housing at MINUTEMAN sites now fulfill numerous emergency requirements. About 1,200 met unexpected family housing needs, as well as other needs, such as alert crew dwellings, airman dormitory quarters, and emergency civilian housing in disaster areas. Trailer units were shipped to Alaska, South Vietnam, and the Philippines and to an island tracking station in the Indian Ocean.

Civilian Personnel

Management measures affecting civilian personnel included the effort to hold down average grades and salaries and the closing of a number of bases. In January 1965, with guidance from the Bureau of the Budget, the number and grades of civilian positions in the major air commands were placed under stringent controls. Positions in grades GS-14 and above were limited to the number filled or obligated on December 31, 1964, which has, since then, remained at 4,245. In May 1965 the Air Force set up a special committee to insure that this ceiling was maintained as well as a ceiling on average civilian salaries.

During fiscal year 1965 the Air Force allotment of supergrades (GS-16 through GS-18) increased from 151 to 155 and the number of Public Law 313 positions rose from 138 to 139. Since January 1965 the average grade of Air Force civilian employees has declined from GS-7.26 to GS-7.21. The number of employees in the GS-1 through GS-3 grades increased by 1,469 (from 20,842 to 22,311).

Base closures posed the problem of finding other positions for more than 50,000 civilians by the end of 1969. By the end of the fiscal year, the Air Force had placed 3,230 employees at their current or higher grades, 725 at lower grades, and 306 with private industry. About four times as many vacant positions were reported as there were employees who needed immediate placement. No employee was separated without an offer of employment.

Civilian personnel management surveys were made at 47 installations. Nine were conducted jointly with the Civil Service Commission (CSC), which undertook a nationwide inspection of Air Force personnel management. The CSC also inspected 19 installations and the headquarters of three commands.

Both the General Accounting Office (GAO) and CSC had questioned the use of contractor employees in several functions. GAO also alleged wasteful duplication at Patrick AFB, Fla., where part of the supply function was carried out by contract. Studies revealed that consolidation of this function within the Air Force would save about 100 positions, and CSC approved conversion of these positions to career civil service. OSD also authorized the Air Force to hire directly about 3,000 contract technical service employees, principally electronic engineers and technicians. The largest single user of these employees was the Ground Electronic Equipment Installation Agency.

Suggestions

Air Force employees made 12 suggestions that led to estimated first-year benefits of at least \$100,000 each in improved aircraft main-

tenance, supply, procurement, and data processing. Estimated first-year benefits from all suggestions totaled \$39.8 million. Three employees were among 30 in the Federal Government who received plaques from President Johnson for their roles in the suggestion program. Presidential citations were given to 88 employees for suggestions resulting in first-year benefits of \$50,000 or more, and 138 Air Force organizations received citations for outstanding teamwork in this field.

Health in the Air Force

The Air Force reduced the number and ratio of military personnel sick in hospitals to the lowest point in its history. Medical statistics for fiscal years 1964 and 1965 are compared in the following table:

	Fiscal year 1964	Fiscal year 1965
Average strength of AF personnel.....	865, 517	840, 913
Admission per year per 1,000 average strength:		
All causes.....	189	181
Diseases.....	166	159
Nonbattle injury.....	23	22
Noneffective ratio (per 100).....	0. 71	0. 70
Hospitalized ratio (per 100).....	0. 55	0. 54
Average number of AF personnel occupying beds in medical facilities.....	4, 729	4, 536
Average number of patients occupying beds in AF facilities.....	8, 364	8, 264
Air Force.....	3, 924	3, 819
Other military.....	339	345
Nonmilitary.....	4, 101	4, 100
Number of births in AF facilities.....	64, 819	61, 189
Outpatient visits in AF facilities.....	15, 763, 887	16, 352, 277
Flight physical exams done in AF facilities.....	214, 207	200, 320
Other complete physical exams.....	519, 655	543, 766
Immunizations at AF facilities.....	8, 782, 648	8, 551, 529

Medical Personnel

The shortage of career physicians and dentists and the difficulty of recruiting trained researchers in aerospace medicine continued. Only 13 percent of the physicians and 15 percent of the dentists had more than 10 years of service, and only 19 percent of the Medical Corps and 25 percent of the Dental Corps were field grade officers. To insure that the Medical Service possesses the needed experience, the Air Force wants 40 percent of each group to be field grade officers. Concerning the shortage of researchers, the Medical Service has a requirement for 600 to 700 new specialists over the next 8 years. An-

other major difficulty involves recruiting and retraining optometrists. By the end of June 1965, 128 of 165 required to meet the minimum authorization were on duty.

Medical personnel assigned to the Air Force at the end of June 1965 were as follows:

OFFICERS (BY CORPS)

Medical	3, 637
Dental	1, 915
Veterinary	330
Medical Service	1, 427
Nurse	3, 488
Biomedical Science	856
Total	11, 653

AIRMEN

Medical Services	22, 084
Dental Services	3, 278
Total	25,362

To alleviate its recruiting and retention difficulties and improve its technical and professional standing, the Air Force Medical Service sponsored the further training of 272 individuals as senior medical students, military interns, civilian interns, dental interns, medical specialists, or nurses. The Medical Service also helped career officers improve their qualifications through graduate study. At the end of the fiscal year there were 368 physicians, 45 dentists, and 6 veterinary officers in residency training, and 98 other physicians in internship under Air Force auspices.

In December 1964 the Surgeon General established a Biomedical Science Corps to insure an adequate number of qualified career personnel in biomedical specialties. The new corps was composed of Medical Service Corps officers who had obtained scientific or engineering degrees, and included biomedical scientists, bioenvironmental engineering officers, and officers formerly in the Medical Specialist Corps.

In recognition of their professional standing 18 Air Force dental officers became diplomates of American specialty boards, bringing the number of such specialists on active duty to 58. This contrasted greatly with the situation 15 years ago when the Dental Corps had no board-certified specialists on active duty.

Medical Facilities

The number and types of Air Force medical treatment facilities at the end of June 1965 were as follows:

	Facilities	Beds
UNITED STATES		
Hospitals.....	92	8, 108
Class A Dispensaries.....	17	128
Class B Dispensaries.....	17	
Total.....	126	8, 236
OVERSEAS		
Hospitals.....	27	2, 075
Class A Dispensaries.....	26	242
Class B Dispensaries.....	26	
Total.....	79	2, 317
Grand Total.....	205	10, 553
Dental Facilities and Mobile Clinics.....	441	

Medical Service

In military public health and occupational medicine the Air Force continued its campaigns against tuberculosis, meningitis, and other diseases. To prevent hepatitis, the Air Force instituted gamma globulin inoculations at Clark AB in the Philippines for officers and airmen bound for Vietnam. Educational materials were distributed worldwide by the Surgeon General's office to combat the health hazards of cigarette smoking.

A leading development in aviation medicine pertained to the treatment of severe altitude dysbarism, a neurocirculatory disturbance due to exposure to a lowered barometric pressure. Six compression chambers for treatment of this condition were procured and medical personnel trained in their use.

Air and water pollution continued to receive close attention at U.S. and overseas bases. The Air Force and the U.S. Public Health Service conducted water pollution surveys at 94 Air Force installations and reported their findings to the House of Representatives Subcommittee on Natural Resources and Power, which had requested the information.

In an important new discovery in dentistry, the School of Aviation Medicine developed a stannous fluoride mouthwash and demonstrated that proper usage reduced the incidence of caries.

On June 26, 1965, the Air Force dedicated the McKown Dental Clinic, Wilford Hall USAF Hospital, Lackland AFB, Tex., the largest modern dental facility operated by any of the Services.

The Veterinary Service supported the Air Force by inspecting foods, helping acquire and train sentry dogs, and combating animal dis-

eases. As a means of quality control, Air Force veterinarians assigned to DSA regional offices inspected the facilities of contractors supplying food and drugs. Through civic action as part of the oversea people-to-people program, the Veterinary Service helped fight rabies, trained citizens of the Azores in cattle husbandry, and studied animal diseases in South America and South Africa.

Chaplains

At the end of June 1965 there were 1,099 Air Force chaplains on active duty—41 under the authorized strength and 23 fewer than a year earlier. During the fiscal year the Air Force lost the services of 83, while 60 new chaplains were ordered to extended active duty.

On May 17, for the first time since 1953, the Chief of Air Force Chaplains acted as host in Washington, D.C., to the annual meeting of the Chaplain Consultative Committee, Allied Air Forces in Europe. Inaugurated in 1952 at Zeist, The Netherlands, by members of the three major faiths, the committee has met annually to discuss problems of mutual concern to the NATO nations represented.

Air Force chaplains conducted numerous Catholic and Protestant missions, convocations, retreats, and religious rites for Air Force personnel and their families in most parts of the world. Twelve Catholic and 12 Protestant civilian clergymen conducted religious missions at Air Force installations in Greenland, Bermuda, Japan, Taiwan, Okinawa, the Philippines, Guam, Hawaii, Alaska, Labrador, Newfoundland, and Korea. Torah convocations and High Holy Day services were held for Jewish personnel and their families in Newfoundland and Labrador.

The Chief of Air Force Chaplains sponsored Catholic and Protestant retreats in Alaska for Army, Navy, and Air Force chaplains in that area. Spiritual life conferences for Protestants were convened during July and August 1964 at three locations in the Far East and at six in the United States. Five professional development conferences were conducted in the United States, four for Catholic chaplains and one for Protestant. A development seminar for Jewish chaplains of the three Services was held in January 1965 at the Army Chaplain School, Fort Hamilton, N.Y.

There were 673 religious facilities (366 chapels and 307 chapel annexes) at Air Force installations, 445 in the United States—3 less than a year ago. Congress authorized construction of nine chapels with annexes, four chapel annexes, and one modification to a chapel at an estimated cost of \$3.5 million. In May 1965 the Chief of Air Force Chaplains also was authorized to establish a field extension office at Randolph AFB, Tex.

Judge Advocate General

The Judge Advocate General gained 160 new officers and lost 253. The number of Air Force lawyers on June 30, 1965, was 1,157, a decrease of 93 from the previous year. While some progress was made in obtaining career officers, retention of officer-lawyers after completion of their 3-year obligated tours remained difficult. In addition, the Air Force was unable to achieve its goal of securing 100 lawyers through direct commissioning. Although 180 applicants were selected, 112 either withdrew their applications or declined the commissions that were tendered.

The court-martial rate continued to decline. Boards of Review rendered decisions on 637 cases. Of these, 202 were petitioned and 5 certified to the U.S. Court of Military Appeals. The Court granted 33 petitions, denied 165, reversed the Boards of Review in 21 cases and sustained them in 12. On June 30, 1965, 25 cases were pending.

The Claims Division received or reopened 3,296 claims amounting to \$8 million, compared with 1,913 amounting to \$5.6 million last year. It closed 3,104 claims totaling \$10.3 million, almost double the number settled last year (1,612 amounting to \$7.4 million). There were 981 claims amounting to nearly \$4 million pending at the end of June 1965. Claims collections in favor of the U.S. Government increased approximately 90 percent, to a total of more than \$1.7 million compared with \$923,711 the previous year.

The Litigation Division received 553 cases, closed 622, and had a total of 1,274 cases pending on June 30.

Military Training

Limitations on resources created serious training problems, especially for young pilots to meet the needs of the general purpose forces. Although the over-all requirement for rated officers declined and was expected to decrease further in fiscal year 1966, flight training had to be increased in order to lower the average age of rated officers.

Flying Training

Flying training schools graduated 2,373 pilots, 245 more than last year. Of this total, 1,992 were for the Air Force, 126 for ANG, 180 for MAP countries, and 75 for other foreign countries. Navigator graduates totaled 1,099, 47 more than last year. This included 1,009 for the Air Force, 72 for ANG, and 18 for MAP.

The training of nearly 2,000 Air Force pilots, compared with about 1,300 in 1962 illustrates the impact of the rapid growth of tactical and airlift forces. By 1967 the requirement is expected to reach 2,700 per

year, which will strain undergraduate pilot training facilities to the limit and may even make it necessary to expand these facilities.

To increase the flight training rate without enlarging the number of training bases, the Air Force adopted a shorter and more concentrated course to begin in July 1965. Plans were also made to consolidate all navigator training at Mather AFB, Calif., starting in August 1965, and to close out James Connally AFB, Tex., current home of undergraduate training, by July 1966. The complete navigator course will be cut from 7 to 6 months.

Initial helicopter pilot training currently consists of 120 flight hours in conventional aircraft (T-28). Flight time in helicopters includes 70 hours in the H-19 and 35 hours in the H-43 or the new CH-3C. The Air Force plans to train about 60 helicopter pilots per year in initial training. Additionally, 175 rated officers per year are trained in helicopters.

In March 1965 the Air Force was assigned to provide pilot training for a group of NASA scientist-astronauts. These men take the standard flight course and then spend 1 week training in bioastronautics at the Air Force School of Aerospace Medicine and another week at the Aerospace Research Pilot School.

Air Force advisers going to Vietnam now receive final qualification in the A-1H after they are in the country instead of receiving A-1H training formerly provided by the Navy. The Air Force does not have any A-1H's in the United States.

At the USAF Survival and Special Training School, Stead AFB, Nev., approximately 4,429 Air Force and ANG combat crew personnel received training in survival, evasion, and escape as well as in proper behavior in the event of capture. In April 1965 the Air Force set up a PACAF jungle survival school at Clark AB, the Philippines, to train aircrews going to Southeast Asia. Until then, aircrew members had been trained at the tropic survival school at Albrook AFB, C.Z.

More than 500 Air Force officers received counterinsurgency training at Air University's Warfare Systems School, Maxwell AFB, Ala. In addition, all students at Squadron Officers School, Command and Staff College, and Air War College underwent this training. Officers assigned to areas where insurgency may occur attended either the Department of State's National Interdepartmental Seminar or its Military Assistance Institute. Fifteen Air Force officers attended the second annual coordination conference for directors of training, which considered all aspects of counterinsurgency training in the U.S. Government.

Technical Training

Air Force technical schools graduated only 103,822 airmen students, 13,143 less than the previous year. The average number of students

in formal courses exceeded 25,000. To alleviate the continuing shortages in some technical skills, the Air Force made greater use of field training detachments and on-the-job training. In addition, mobile training detachments provided special training at the request of field commanders. Almost 200 field training detachments, with units located all over the world, furnished maintenance, aircrew, and various other types of training. The higher level of education among recent recruits eased some of the training difficulties because the men learned faster and fewer failed the technical courses.

The Services used common facilities for training some specialists. The Air Force sent about 4,465 students to Army and Navy schools and 2,347 Army and Navy personnel entered Air Force schools. Also, the Air Force planned to open a school at Offutt AFB, Nebr., to provide advanced training in photographic, radar, infrared, and multisensor interpretation for about 200 students per year from the three Services.

Fiscal year 1965 saw the first large-scale reduction of ICBM missile training. By January the Air Force had discontinued ATLAS E and F and TITAN I technical training. ATLAS D training had been eliminated a year earlier. Since missile training had been reduced gradually, no serious dislocation of personnel resulted. Students and instructors were transferred to TITAN II and MINUTEMAN training programs.

In evaluating the cost of Air Force technical training, a comparative study was made of similar programs in the Army, Navy, and civilian institutions. The study concluded that the cost was reasonable and that contract training was generally less economical and satisfactory than in-house Air Force training.

Training Planes and Devices

The principal aircraft for undergraduate pilot training included the T-41A, the T-37, and the T-38. The single-engine, propeller-driven T-41A is used during the first phase of primary pilot training. The 170 T-41A's purchased by the Air Force in September 1964 were delivered in April and May 1965. The T-37 jet primary trainer has proved highly satisfactory for several years. The T-38, the first supersonic jet trainer, will completely replace the T-33 in fiscal year 1967 for use in the last phase of undergraduate pilot training. Its maintenance costs, both in money and time, have been so much lower than anticipated that the Air Force reduced its planned procurement by 93 aircraft—from 941 to 848.

Because of the growing costs of weapon and support systems, more special training devices are being used to help simplify training and save time and money. Flight simulators were used to train pilots and navigators, and other devices were applied to teaching maintenance

and operation of missiles, electronic countermeasures (ECM), radiological survey, and simulation of space travel. A new "instruments first" method of instruction was adopted for beginning student pilots. Flight simulators provide students with practical instrument knowledge and familiarity with the aircraft before they actually begin flying in the high-speed training planes.

The Air Force allotted about \$12 million for MINUTEMAN trainers used by both Air Training Command (ATC) and SAC, and \$13 million for ECM training equipment used by ADC, SAC, USAFE, and other major commands. F-4, F-111, T-38, and T-37 flight simulators were also purchased, and about 150 radiological survey training sets were provided the commands to teach disaster control.

In December 1964 the Aerospace Research Pilot School at the Air Force Flight Test Center, Edwards AFB, Calif., unveiled a 15-ton T-27 space flight simulator that provided realistic training in orbital launch, rendezvous, and space docking. Computer-controlled, the 32-foot-high steel girder complex, with its 2,800-pound steel and fiberglass cockpit, furnishes complete space mission training at one facility.

Professional Education

The average education level of Air Force officers has risen rapidly during the last 20 years—62 percent held college degrees in 1965 versus 27 percent in 1949. More than 10,000 officers have master's degrees, nearly 800 have doctorates (excluding medical), and about 5,000 others have done some graduate work. In addition, each year the Air Force has sent officers to work with industries, nonprofit R&D institutions, and universities.

The Air Force Reserve Officers' Training Corps (AFROTC) continued to be the major source for commissioned officers. More than 25 percent of the officers currently on active duty received commissions through AFROTC. On October 13, 1964, President Johnson signed into law the first major revision of ROTC in nearly 50 years. Besides continuing the 4-year program, the law authorized a new 2-year program and provided scholarships for students in the 4-year course. The 2-year program was open to students with 2 years of college work as well as to transfer students from colleges that did not have ROTC programs. About two-thirds of all college juniors and seniors had previously been ineligible for ROTC because they had not participated during their freshmen and sophomore years. Under the new system, 2-year students must take 6 weeks of field training before entering the program. More than 900 students attended two 6-week courses given at Keesler AFB, Miss., between June 13 and July 23, 1965. In the field training program for 4-year students, 5,644 advanced cadets participated in 32 encampments at 18 bases in various parts of the United States.

The Air Force planned to grant scholarships to 1,000 students who will begin their third year of ROTC in September 1965. These scholarships will provide students with tuition, textbooks, and laboratory fees, plus \$50 per month for subsistence. The Air Force expects to expand its scholarship program in the future.

At the end of fiscal year 1965, 79,668 students were participating in ROTC programs at 186 colleges and universities. Only 9,631 of these, however, were in advanced programs (juniors and seniors). AFROTC commissioned 4,509 graduates during the year. Also 5,487 old and new AFROTC graduates applied for flying training—4,475 as pilots and 1,012 as navigators.

The Air Force Academy graduated 517 cadets in June 1965, the largest class in its history. Of these, 505 accepted commissions in the Regular Air Force and 2 in the Marine Corps. Six did not receive commissions because they failed to meet physical standards, and four were still undergoing physical examinations at the end of the fiscal year. The Air Force assigned 310 of the new second lieutenants to pilot training and 29 to navigator training. The remainder, including 25 who received scholarships, continued their academic education or entered other types of specialized training.

Early in January 1965 cheating incidents at the Academy attracted nationwide attention, and the Air Force undertook a thorough investigation. By March 25 the Air Force had accepted resignations from 109 cadets who had been involved or knew of the cheating and failed to report it. Two cadets involved in stealing examination papers received discharges under other than honorable conditions. The investigating committee headed by Gen. Thomas D. White, former Chief of Staff, recommended several changes in Academy policy and organization but affirmed faith in the cadet honor code.

Academy expansion, authorized by Congress in March 1964, will permit cadet enrollment to rise to 4,417. In 1971, when the Academy reaches its full strength, it will be able to graduate nearly 1,000 students a year and meet about 30 percent of the annual requirement for new Regular officers.

During fiscal year 1965 OTS commissioned 3,582 graduates, 386 of whom were students under the Airman Education and Commissioning Program. Through this program 839 airmen have obtained bachelor's degrees and commissions since September 1961. Airmen with high scholastic aptitude, particularly in science and engineering, were sent to college for up to 24 months. After obtaining a degree, they received military training at OTS to earn commissions. Only 8 percent have failed to complete college and OTS.

Air University continued to supervise Air Force academic programs. Of the 1,181 officers who began work toward degrees at civilian colleges

or universities, 1,058 were graduate students. In fiscal year 1965, 38 students were permitted to accept fellowships, scholarships, or grants for advanced work in the United States and overseas. During the past 2 years, 71 officers received this permission as compared with 84 in the previous 10 years. Despite reductions in Air Force manpower and budget limitations, educational programs continued to receive strong support to keep the officer corps abreast of changes in technology and management.

The Air Force Institute of Technology (AFIT), a major division of Air University, continued to emphasize education in science, engineering, and technical management. Through an arrangement with the University of Southern California, AFIT conducted courses for Academy graduates in international relations and engineering and in June 1965 established an industrial management course. At the end of June the Air Force and the University were considering establishing a series of courses in mathematics.

A master's degree program in logistics management, conducted by AFIT's School of Systems and Logistics, proved so successful that the student quota was raised from 30 to 45 and will probably reach 100 by 1967. AFIT's Resident School of Engineering, Wright-Patterson AFB, Ohio, reached agreement with Air Force laboratories on the base whereby their scientists and engineers will serve on the school's faculty. This will enable the school to offer a doctoral program to 12 students each year. After completing a 2-year course, the students would work 4 years in Air Force laboratories. In addition, about 60 undergraduates and 200 working toward masters' degrees would enter the school each year.

Since January 1965 the demand for graduate degree programs on Air Force bases has increased substantially. In USAFE, the University of Southern California established graduate courses leading to master's degrees in aerospace management and education. At the end of June, SAC and ADC were negotiating with this university for 10 graduate-level programs on bases in the United States. The University also expressed interest in setting up a graduate study division at the Pentagon.

In October 1964 OSD increased tuition assistance for military personnel attending college courses after duty hours from \$13.50 to \$14.25 per semester hour and from \$9 to \$9.50 per quarter hour. Enrollment for off-duty courses during fiscal year 1965 was approximately 190,000, about the same as the previous year. In July 1964 the Air Force authorized tuition assistance for students taking University of Oklahoma courses leading to the degree of Bachelor of Liberal Studies. These special correspondence courses were for students in isolated locations

or for those who could not attend evening classes and whose duties permitted a large amount of reading or independent study.

Interest in Air Force foreign language proficiency courses increased. With the assistance of local colleges and universities, Air Force commands established about a dozen courses during the year and expected to have approximately 60 by the end of fiscal year 1966. The University of Maryland and Florida State University offered college language courses in USAFE, USAFSO, and four bases in the southern United States. Within a year the Air Force expects to set up additional courses in these overseas areas and to expand the number in the United States. The Air Force also obtained 16 language laboratories for courses scheduled to begin in fiscal year 1966.

IX. Research and Development

The Air Force R&D program was highlighted by the initial flight tests of the TITAN III space booster and the support provided NASA's Project GEMINI. On March 23 and June 3, 1965, Air Force TITAN II boosters flawlessly launched the two-man GEMINI spacecraft into orbit. The second of these flights lasted 4 days and included the famous "walk in space" by Air Force Maj. Edward H. White, the first American astronaut to step out of an orbiting vehicle.

The global tracking facilities of the Air Force Systems Command (AFSC) participated in tracking NASA space vehicles. In addition, the Air Force provided critically needed personnel in direct support of NASA operations. By the end of June, 102 Air Force officers were filling important NASA management and technical positions and that agency requested assignment of another 128.

In connection with NASA's launch program, the Air Force established a special control center to monitor and seek elimination of harmful interference from foreign radio transmitters using the same frequencies. During GEMINI operations, the center referred many instances of this type of radio interference to the Department of State, which quickly obtained satisfactory solutions.

Range Management

AFSC's National Range Division (NRD)—established in May 1964 as a central planning authority for range support of ICBM and space vehicle launchings—took over management of both the Eastern and Western Test Ranges. The Navy had previously been responsible for operating the Western Test Range under the name of Pacific Missile Range. The estimated money value of these ranges was more than \$2 billion; annual expenditures for maintenance and operations, \$250 million; and modernization activities, \$50 million. The Air Force centralized management control, beginning in the spring and summer of 1965, and was able to standardize equipment and procedures, consolidate range activities, and allocate resources more efficiently. NRD also took over a fleet of ships and aircraft which supported both DoD and NASA launchings.

In February the Western Test Range assumed support responsibilities from the Navy for all launchings from Vandenberg AFB, Calif. The Navy's Point Arguello facility earlier had been incorporated into Vandenberg AFB.

In the past, portions of the satellite control functions had been accomplished, in part, by AFSC's Space Systems Division at Los Angeles and by the 6594th Aerospace Test Wing, Sunnyvale, Calif. For purposes of efficiency and economy, during the fiscal year AFSC ordered a consolidation of these functions under a single Space Systems Division organizational element called the Air Force Satellite Control Facility.

Space Development

TITAN III

On September 1, 1964, the Air Force launched the first TITAN III-A booster from Cape Kennedy. Most test objectives were achieved, although the booster failed to orbit an inert satellite because of a third stage (transtage) malfunction. Three other TITAN III-A's were subsequently launched, in December 1964 and February and May 1965, boosting several active experimental satellites into orbit. Following the May launch the TITAN III-A engine, in a feat of maneuverability never before accomplished in the American space program, was fired successively into four different orbital paths.

On June 18, the year's activities were capped with the successful launch of the more advanced TITAN III-C, which developed more than 2 million pounds of lift-off thrust. An inert satellite weighing 21,400 pounds was put into a nearly circular orbit with an apogee of 101 miles and a perigee of 96 miles.

The TITAN III-A launching system consists of the two stages of the TITAN II ICBM, the propulsion and control modules of the transtage and a payload fairing. TITAN III-C is the TITAN III-A plus two strap-on 120-inch diameter solid propellant motors. In addition to these models, the Air Force initiated work on a TITAN III-X which would use an AGENA or NASA CENTAUR upper stage in place of the transtage.

In December the Air Force stretched out the TITAN III flight test program to enhance the compatibility of the booster development schedule with schedules of follow-on user programs such as MOL and the Advanced Defense Communications Satellite Project (ADCSP). All major TITAN III objectives were met on time with fewer test flights than originally scheduled, reducing costs by \$33 million during the fiscal year.

Major construction projects to support the TITAN III program, including the integrate-transfer-launch facility, were completed at

Cape Kennedy and Edwards AFB, Calif., and only three minor down-range items remained. Total construction costs were within the \$66.5 million authorized. Design of facilities to provide an initial launch capability at Vandenberg AFB, Calif., was 40 percent complete. In June the Air Force awarded a contract to modify a pad at Vandenberg for the TITAN III-X, with construction to be completed by November 1965.

In the Air Force-NASA solid propellant motor development program, three tests of the 156-inch diameter motor were notable successes. This motor was under consideration as a replacement for the 120-inch motor on the TITAN III-C. The first two tests occurred late in 1964, when two 156-inch units were static fired and produced 1 million pounds of thrust, one using jet tabs for thrust vector control and the other a large movable nozzle. In a third test in February 1965, using components from NASA's planned 260-inch motor, the 156-inch unit produced more than 3 million pounds of thrust, twice that of any previous U.S. motor.

Manned Orbiting Laboratory

The Air Force continued to study and analyze the MOL. On March 1, 1965, the Air Force awarded 60-day preliminary design contracts totaling \$400,000 to four competing contractors for a system based on the TITAN III-C booster and a modified GEMINI spacecraft. The contractors were asked to provide cost and technical information that would enable Defense officials to decide whether to proceed with full-scale development.

Lifting Reentry Bodies

As part of its spacecraft technology and advanced reentry test (START) program, the Air Force expanded its investigation of lifting body designs in order to develop vehicles that a pilot could maneuver during reentry and land within a specified area. After dropping specially configured bodies from balloons and testing them in wind tunnels, the Air Force selected for hypersonic flights the SV-5 wingless craft, which has a V-shape, flat bottom, rounded top, and vertical tail fins. ATLAS boosters will launch this vehicle in test flights from Vandenberg AFB, Calif. For transonic flight, the Air Force is proceeding with a larger version of the SV-5, with initial test flights to consist of airdrops from a B-52.

START's predecessor, the aerothermodynamic elastic structural systems environmental test (ASSET) launch project, supplied data for the development of future glided reentry spacecraft. Weighing some 1,440 pounds, these winged gliders were launched from Cape Kennedy to reenter the atmosphere at extremely high velocities, their shape providing a small amount of lift for maneuvering and slowing

their descent. Six ASSET vehicles were launched, five successfully, with the last flight taking place on February 23, 1965. Reentry data were obtained by ground monitors during the flights.

Communication Satellites

In October 1964 the Air Force was authorized to develop the space segment of the Defense Communications Satellite System. The original Air Force plan, drawn up in 1962, called for several launches with the ATLAS-AGENA booster combination to place a total of 24 satellites into medium altitude polar orbits. DoD and the Air Force, however, decided to take advantage of the more advanced TITAN III-C to boost all the satellites into high equatorial orbits. Using the greater payload lifting capability of the TITAN III-C, the Air Force hoped to establish an initial communication system by 1966 with only three boosters, each deploying eight satellites. Contracts were awarded for development and acquisition of the 24 satellites and 3 satellite dispensers, and modification designs of the launching pad and other required facilities at Cape Kennedy were completed.

Pending development of this initial Defense Communications Satellite System, the Air Force undertook studies of operational and technical requirements for a more advanced communication system, which might be made available by 1968.

Nuclear Safeguards

Since the limited nuclear test ban treaty of 1963, the Air Force has played a major role in maintaining the necessary safeguards required to protect the national security. The Air Force has continued its studies on the military aspects of nuclear weapon effects and has furnished specially-equipped jet transports to three AEC laboratories involved in similar research. Johnston Island AB has been maintained in a state of preparedness for resumption of atmospheric testing, should the need arise. The Air Force has supported the Defense Atomic Support Agency in this effort.

Detection Satellites

In July 1964 an Air Force ATLAS-AGENA rocket boosted two VELA satellites 65,000 miles above the earth, where they joined the original pair launched in the fall of 1963 to detect clandestine high altitude nuclear explosions. Carrying sensors to measure rays and neutrons produced by a nuclear blast, these satellites scanned electronically more than 200 million miles of space and charted natural radiation so that any sudden burst of energy could be spotted quickly. The Air Force planned to launch two additional VELA satellites during the next fiscal year.

In a related area, Air Force experiments over a period of years have demonstrated that infrared sensors aboard satellites can detect missile plumes. In April 1965 the Air Force selected three contractors to study an advanced satellite system that could detect ballistic missile launches anywhere in the world, as well as detonations of nuclear weapons, and could help monitor the limited nuclear test ban.

Space Medicine

In October 1964 the Air Force School of Aerospace Medicine completed development of a four-man experimental space cabin designed to simulate conditions in the MOL. Three airmen subsequently spent 38 days in the space cabin to test the effects of living in an oxygen-helium atmosphere.

The School of Aerospace Medicine and Wilford Hall Hospital also joined in developing a low-residue liquid diet for astronauts on extended flights in space.

Engineering Development

XB-70 flights furnished valuable information on high-speed flight by large aircraft. The first of the two R&D aircraft in this program made its initial flight in September 1964. During its fourteenth flight, in June 1965, the XB-70 reached a speed of Mach 2.85 and an altitude of 68,000 feet. The plane also set a record for gross takeoff weight, more than 250 tons. The second XB-70 flew in July.

The Air Force and NASA agreed to support a joint XB-70 research program to supply NASA with specialized data for a supersonic transport. Knowledge gained from XB-70 test flights also helped the Air Force refine its planning for the Advanced Manned Strategic Aircraft (AMSA), the proposed successor to the B-52. OSD approved advanced development of a propulsion system and an avionics system. The Air Force awarded contracts to two propulsion contractors in June.

Development approval was sought for the AGM-69A short-range attack missile (SRAM), proposed for use by both the strategic and tactical forces. Unlike earlier air-to-ground missiles, the AGM-69A would be carried inside a B-52 or inside the versatile F-111. The aircraft would remain beyond the lethal range of enemy defenses and launch the missile against primary targets as well as against the defenses. In May OSD approved the program and in June AFSC prepared a request to industry for proposals.

Under the Advanced Ballistics Reentry System (ABRES) program, the Air Force continued to develop and test ICBM penetration aids for use against enemy targets defended by antimissile missiles.

Nine full-scale flight tests using ATHENA boosters were launched from Green River, Utah, to White Sands Missile Range, N. Mex. To support the ABRES program, the Air Force in May completed a \$1.4 million construction project at Vandenberg AFB providing for ATLAS E and F launchings. In June conversion work began on two other pads to provide a similar capability; the project will cost \$1.3 million and is to be completed in December 1966. ABRES launch and support facilities at Green River, Utah, were completed in March 1965.

For defense against supersonic bombers the Air Force placed great hopes in the improved manned interceptor (IMI), the YF-12A. The aircraft's armament, the XAIM-47A advanced FALCON air-to-air missile, and the ASG-18 pulse doppler fire control system, were tested. This combination permits the YF-12A to engage hostile bombers flying at any altitude. It also permits the aircraft to be relatively independent of control by ground radars. With its superior speed, range, and weaponry, the YF-12A will be able to complete several strikes with greater accuracy than current interceptors.

In March the first XAIM-47A fired by a YF-12A scored a direct hit over the longest range ever recorded for an air-to-air missile. In May the YF-12A claimed nine world records, reaching a speed of 2,062 miles per hour and horizontal flight at 80,000 feet.

The mobile midrange ballistic missile (MMRBM) was canceled, but the Air Force continued to explore the most important technical portion of the MMRBM system—stellar inertial guidance—which offered the possibility of quick and accurate launch of a transportable missile. In April and June 1965 the Air Force demonstrated star acquisition and tracking during ballistic missile booster burning. Two additional flights were planned to measure high altitude background light intensity.

During the fiscal year the Air Force worked with the other Services and the Advanced Research Projects Agency (ARPA) in R&D for special air warfare. They concentrated on equipment that could be used and evaluated in South Vietnam. Among the projects and devices under investigation were television with a low-light level, beacons, radio relay pods, man-pack radar, improved flares, infrared reconnaissance, and improved munitions and weapons.

Aircraft Technology

Probes of the lower edges of space by the X-15 rocket research aircraft obtained valuable information on hypersonic aerodynamics, reentry heating, and physiological problems. This information was shared by the Air Force, Navy, NASA, and industry.

The Air Force continued to manage the XC-142A tri-Service V/STOL transport development program. Of the five XC-142A's procured, three began test flights during the year. The first conventional flight took place in September 1964, a vertical flight followed in December, and on January 11, 1965, the XC-142A took off vertically, changed to conventional flight, converted back to vertical flight, and made a vertical landing. This was the first full demonstration of its unique capabilities.

The Air Force also directed development of the tri-Service X-19A, a twin-engine, high-tandem-wing VTOL aircraft. Four propellers, one on each wingtip fore and aft, are tilted vertically for takeoff and landing, swing through 90 degrees in climb and are in normal horizontal position for cruise. The X-19A was scheduled to begin test flights during the summer of 1965.

Improvements in thrust-weight ratios for propulsion systems indicated that a V/STOL transport could be developed by the mid-1970's to replace the C-130 for intratheater assault airlift. Early in 1965 the Air Force awarded two advanced study contracts for such a V/STOL, the CX-6.

In November 1964 the United States and the Federal Republic of Germany agreed on a cooperative R&D program on the two Air Force transports (the XC-142A and the X-19A) and the German DO-31 transport and VJ-101C supersonic fighter. The Air Force also will help the Germans develop the avionics system for the VAK-191B fighter in exchange for data on all phases of the aircraft's development. In fiscal year 1966 Air Force pilots, as part of a joint U.S.-French evaluation program, will begin flight tests of the French-built Balzac-Mirage supersonic fighter.

Future Propulsion Systems

Three Air Force hypersonic air-breathing propulsion units were under consideration for development—the Mach 8 ramjet, the turbo-accelerator, and the ramjet (scramjet). Unlike conventional jet engines, the scramjet has moving parts only in the fuel feeding system and produces thrust by burning fuel in a supersonic air stream. During one test, a 30-inch-long engine simulated a speed of about Mach 6. Since the scramjet engine might be able to propel vehicles to speeds of Mach 12, closing the gap between aircraft and spacecraft speeds, AFSC recommended its accelerated development.

In July 1964, after numerous investigations of nuclear and chemical power for low altitude supersonic vehicles, the nuclear portion of the program was terminated. Funds for the chemical portion were reduced and work was redirected toward the SRAM.

Theoretical and experimental work by the Air Force had indicated that the use of small nuclear explosives to propel a space vehicle (Project ORION) was feasible. In July 1964 the Air Force requested \$7.4 million for fiscal years 1966 and 1967 to conduct three ORION underground nuclear tests. In May 1965 the request was disapproved and the Air Force terminated the project because no military requirement for the program could be foreseen.

In September and December 1964 the Air Force tested a cesium-contact ion engine in missile flight. The engine worked satisfactorily while on the crest of the ballistic trajectory. The engine also was tested in orbit on April 3, 1965, after being carried aloft along with the AEC's System of Nuclear Auxiliary Power (SNAP-10A). The orbital test results were inconclusive but initial objectives of the SNAP-10A development were met.

In the SNAP-50/SPUR program, the AEC and the Air Force developed equipment for a nuclear reactor space power unit with 300 to 1,000 kilowatts of energy. The Air Force built a 3,000-kilowatt heat transfer loop, completed tests of a 50-kilowatt potassium-cooled generator, and began design of a 350-kilowatt generator.

The Air Force studied the application of solid propellants for possible use in very low thrust propulsion devices needed in space. By firing miniature solid propellants on a tape in cap pistol fashion the devices would provide thrust of less than 1 pound. Such units may be incorporated into the GEMINI space suit to enable crews to do maintenance and rescue work and into the MOL system for attitude control.

Another means of propulsion investigated by the Air Force was an electrical power system which could use the sun as a source of energy. Under this advanced solar turboelectric concept (ASTEC), Air Force laboratories evaluated sample materials for a solar collector to determine reactions under simulated space conditions. The samples will be launched into orbit to verify the data obtained in laboratory tests. In ground tests, a 50-watt hydrogen-oxygen fuel cell demonstrated its ability to withstand the stresses of ascent and orbit. It will be installed in a space vehicle and operated for 50 hours in orbit.

The Air Force and NASA cooperated in an experimental program to determine the feasibility of electric propulsion for a mission to Mars in the 1970's. The program is directed toward achieving a 75-kilowatt power system with an endurance of 6,000 hours.

Avionics

In June 1965 six aircraft inertial platforms were evaluated through laboratory tests and F-106 flight tests conducted by the Central In-

ertial Guidance Test Facility, Holloman AFB, N. Mex. Selection of the Mark II avionics inertial platform for the F-111 will be based on these tests, a "fly before buy" procedure that the Air Force intends to follow in the future.

The Air Force also continued development of a low-cost inertial navigation system and will test the first prototype in 1966. As a result of Air Force emphasis on a low-cost system, industry has reappraised its techniques and is working to reduce its own costs. The project is expected to result in substantial savings in acquiring inertial navigation equipment.

The joint Air Force-FAA flight research program made progress toward solution of control-display problems associated with aircraft letdown, approach, landing, and takeoff under "blind" conditions. This research also pointed the way to military flights under extremely low visibility and independent of ground-based guidance aids.

The current Long-Range Navigation (LORAN-C) System of low frequency radio sets requires large permanent ground stations using huge antennas. In February the Air Force and the Army began an advanced development program to produce and test LORAN-D, a tactical air-transportable version of the LORAN-C that could be erected quickly in a theater of operations.

Materials

The Air Force continued to investigate new composite materials which offer the possibility of reducing aircraft and spacecraft weights without sacrificing strength or stiffness. These materials, which include boron fiber composites, could also be used in new engines for transport, strategic, and V/STOL aircraft.

In December 1964 the Air Force and the British Ministry of Aviation began exploring ways to capitalize on the properties of beryllium for jet engine parts. Successful development will significantly improve engine performance and thrust-weight ratio.

In June the first flight of the TITAN III-C demonstrated that Martyte, a new lightweight coating, could protect the launch structure from the fierce exhaust of rocket motors. A refractory ceramic material, Martyte combines the properties of plastic and ceramics with the strength of concrete.

Research

The United States and Canada extended the expiration date of the Churchill Research Range agreement to December 31, 1965, at which time range management was to pass from the Air Force to Canada's National Research Council. Air Force and NASA scientists were to

continue using the range to explore the geophysical effects of proximity to the geomagnetic pole. Beginning in July 1965 Canada was to pay half the annual operating costs of the range, saving the Air Force more than \$1 million annually and NASA about \$500,000.

During fiscal year 1965 a new Toxic Hazards Research Unit, at the 6570th Aerospace Medical Research Laboratory, Wright-Patterson AFB, Ohio, became operational. This Air Force facility is the only laboratory equipped to perform toxicological research in precisely controlled environments under conditions of space cabin simulation.

In October 1964 the Air Force's Haystack Microwave Research Facility became operational at Tyngsboro, Mass. A tool for scientific research in space communication and radar technology, the radar has a 120-foot antenna protected from weather by a metal frame radome. Interchangeable electronic packages plug in behind the primary reflector to permit a complete change of frequency or mode of operation in a relatively short time.

In January, Air Force scientists bounced a laser beam off the EXPLORER 22 satellite and photographed its reflection. This technique can obtain ranging and angular information against a star background to help scientists determine the distance between widely separated points on the earth's surface.

During fiscal year 1965 the Air Force contracted for \$17.2 million in military construction projects to advance research and technology. Scientific laboratories and research facilities accounted for 39 percent, medical facilities, 25 percent, and miscellaneous base support items, 36 percent.

X. Management

The annual Air Force budget reflected the need to maintain forces for both conventional and general war, while increasing the ability to support friendly nations being attacked by Communist-sponsored insurgents. The Air Force continued to search for and institute more efficient and economical management practices. The results achieved during fiscal year 1965 surpassed the cost reduction and savings objectives established by the Secretary of Defense.

1965 Budget

The proposed Air Force budget, as approved by the President, called for \$19,184.5 million in new obligating authority—including \$425 million for military construction—and was well below the previous year's budget. The DoD appropriation bill passed by Congress in August 1964 gave the Air Force \$18,499.8 million and authorized the transfer of \$84.4 million from working capital funds in lieu of appropriation. A separate bill passed in September 1964 added \$351.1 million for military construction, and an April 1965 supplemental appropriation of \$108.8 million covered previously authorized military and civilian pay increases.

On May 7, 1965, Congress made available to the Secretary of Defense an additional \$700 million as an emergency fund for the conflict in Southeast Asia. Of this amount, the Air Force received \$231 million (\$58.8 million for aircraft procurement, \$116.2 million for other procurement, \$15 million for operation and maintenance, and \$41 million for military construction), which raised its fiscal year 1965 budget to \$19,275 million in new obligational authority. This new total was \$136 million less than appropriations for the previous year.

Including transfer and supplemental funds, the major cost categories for fiscal year 1965 were as follows: Military personnel (including AFRes and ANG), \$4,663.9 million; operation and maintenance (including the ANG), \$4,855.5 million; aircraft procurement, \$3,622.5 million; missile procurement, \$1,715.2 million; other procurement, \$875.3 million; research, development, test, and evaluation (RDT&E), \$3,175.3 million; and military construction (including AFRes and ANG but excluding military housing), \$392.1 million.

The \$3,175.3 million new obligational authority for RDT&E included \$63.3 million transferred principally from the OSD Emergency Fund. The total reflected a decrease of \$369.1 million from the fiscal year 1964 appropriation adjusted for transfers and the actual appropriation was \$93.0 million less than requested by the President's fiscal year 1965 budget.

Total funds available for the Air Force military construction program amounted to \$706.3 million. They included \$332.1 million in new fiscal year 1965 appropriations, the \$41 million supplemental appropriation for Southeast Asia construction, \$332.4 million unobligated carryover from fiscal year 1964 and \$0.8 million reimbursements. For reserve construction, Congress appropriated \$19 million—\$14 million for the ANG and \$5 million for the AFRes.

In new obligational authority for minor construction, Congress appropriated \$12.37 million. Total funds available for this work amounted to \$17.7 million, including \$3 million in carryover and \$2.3 million in recoupments. However, as of June 30, 1965, approved minor construction requirements exceeded the amount of available funds by \$2.5 million.

While fiscal year 1965 appropriations for missile and other procurement declined, aircraft procurement, after decreasing steadily for several years, increased from \$3,386 million in fiscal year 1964 to \$3,622 million.

The following table summarizes the amounts made available by direct appropriations and by fund transfers:

AMOUNTS AVAILABLE FOR OBLIGATION BY THE AIR FORCE
DURING FISCAL YEAR 1965—AS OF JUNE 30, 1965

(In Millions of Dollars)¹

Department of Defense Appropriation Act 1965	18,499.8
Military Construction Appropriation Act 1965	351.1
Deficiency Appropriation Act 1965	108.8
Total New Obligational Authority Enacted	18,959.7
Unobligated Balance of Prior Year Programs	2,633.8
Transfer from Emergency Fund, Defense, 1965, to:	
Military Personnel, AF	+18.6
RDT&E, AF	+61.2
Transfer from Emergency Fund, Southeast Asia Appropriation, to:	
Operation and Maintenance, AF	+15.0
Aircraft Procurement, AF	+58.8
Other Procurement, AF	+116.2
Military Construction, AF	+41.0
Transfer from Operation and Maintenance, Navy, to Operation and Maintenance, AF	+4.4

¹ Represents nearest rounded figure.

AMOUNTS AVAILABLE FOR OBLIGATION BY THE AIR FORCE
DURING FISCAL YEAR 1965—AS OF JUNE 30, 1965—Continued

Transfer to Emergency Fund, Defense, 1965, from:

Reserve Personnel, AF.....	-2.3
National Guard Personnel, AF.....	-4.4
Operation and Maintenance, AF.....	-7.5
Operation and Maintenance, ANG.....	-4.4
Missile Procurement, AF.....	-14.8
Other Procurement, AF.....	-20.0
RDT&E, AF.....	-2.0

Transfer from Operation and Maintenance, AF, to:

Public Building Service, General Services Administration, for Operating Expenses, 1965.....	- .2
Operation and Maintenance, Defense Agencies, 1965.....	- .4
Operation and Maintenance, Army 1965.....	- .1

Transfer to Military Personnel, AF, from:

Air Force Stock Fund.....	+41.0
Defense Stock Fund.....	+40.0

Transfer to RDT&E, AF, from RDT&E, Defense Agencies.....	+4.1
Reimbursements.....	1,317.8

Total Available for Obligation during Fiscal Year 1965..... 23,251.4

Actual obligations and expenditures for fiscal year 1965 are summarized in the table below. The total obligations of \$20,036.4 million compare with \$21,370 million for 1964 and \$21,202 million for 1963. The total expenditures of \$18,216 million compare with \$20,508.6 million for 1964 and \$20,641.6 million for 1963.

AIR FORCE ACTUAL OBLIGATIONS AND NET EXPENDITURES FOR
FISCAL YEAR 1965—AS OF JUNE 30, 1965

(In Millions of Dollars)¹

	Obligations	Net expenditures
Military Personnel.....	4,571.9	4,548.9
Reserve Personnel.....	56.4	54.7
National Guard Personnel.....	64.8	65.5
Operation and Maintenance.....	5,018.6	4,524.1
Operation and Maintenance, ANG.....	233.7	235.9
Discontinued Procurement Appropriations.....		11.0
Aircraft Procurement.....	3,765.8	3,114.8
Missile Procurement.....	1,398.8	1,320.2
Other Procurement.....	983.6	665.5
RDT&E.....	3,446.3	3,145.8
Military Construction, AF.....	487.5	489.6
Military Construction, AF Res.....	1.3	3.6
Military Construction, ANG.....	7.6	13.8
Miscellaneous.....		22.5
Total.....	20,036.4	18,216.0

¹ Represents nearest rounded figures. Amounts do not add to total.

HOW THE AIR FORCE DOLLAR WAS SPENT

	<i>Percent</i>
Aircraft, Missiles and Related Equipment.....	28
Aircraft	(17)
Missiles	(7)
Other	(4)
Military Personnel ¹	26
Civilian Personnel ²	11
Military Construction ¹	3
Operation and Maintenance ¹	16
RDT&E	16

¹ Includes Reserve and ANG.

² Includes direct hire and contract personnel.

1966 Budget

For fiscal year 1966 the President requested \$17,992 million in new appropriations for the Air Force, including \$436 million for military construction. In addition, the President requested the transfer of \$85 million from working capital funds in lieu of new appropriations. This was \$1,198 million less than appropriated for fiscal year 1965.

Included in the Presidential budget request was \$3,850 million for procurement of 517 aircraft and logistical support. Funds were specifically requested for procurement of the SR-71 strike reconnaissance aircraft, the advanced F-4E fighter, and additional F-111A's, RF-4C's, C-141's, T-38's, and UH-1F helicopters. The President also asked for funds to insure continued production of the HC-130H. At the close of the fiscal year the House of Representatives had passed the DoD appropriation bill, reducing the Air Force budget request by only \$82.5 million. Action by the Senate was pending.

Cost Reduction

In fiscal year 1965, Air Force management continued to support the Secretary of Defense's cost reduction program and seek savings in accordance with the goals established by President Johnson in late 1963. Efficient pursuit of these cost reduction goals enabled the Air Force to confirm actual savings of \$2.2 billion.

Savings were realized by numerous management actions, such as recomputing requirements for initial and replenishment spares, eliminating some marginal weapons systems, and closing bases. Air Force base closures alone are expected to result in some \$716 million in savings by 1971. In one instance, the Air Force canceled a \$39 million procurement of air-to-air missiles when it was able to acquire 1,200 SPARROW air-to-air missiles which were excess to the Navy's need.

Important savings were realized by terminating unnecessary operations, consolidating and standardizing operations, and improving procurement procedures. To raise standards of personnel performance, the Air Force adopted the "Zero Defects" program. Initially placed in effect in AFLC and AFSC in August 1964, the program was subsequently expanded to include all major commands. AFSC established a plan to develop similar programs for its contractors.

To help alleviate the Nation's gold flow problem, the Air Force undertook several actions during the year to reduce oversea expenditures. They included withdrawing organizations and personnel from oversea areas and placing increased emphasis on U.S. procurements. U.S. military assistance sales to foreign countries netted more than \$370 million.

Data Automation

The Air Force purchased \$19.5 million's worth of ADPE, bringing to 200 the number of Government-owned computers and to 700 the number of computers available to the Air Force. The installation of new automation equipment during the year made 1,813 manpower spaces available for redistribution to other functions.

The extensive and growing use of ADPE, exemplified by a request for \$78.3 million in fiscal year 1966 for rental and maintenance of such equipment, led the Air Force to establish two ADPE survey offices to evaluate current automated systems and supervise future installations. The Air Force continued to support negotiations with industry by the GSA and DoD to obtain more favorable ADPE contracts. These efforts during the year resulted in Government savings of approximately \$10 million.

ADPE improved budgetary, logistics, and personnel management. In April 1965 the Air Force adopted a standard data processing system to automate nontemporary storage accounts at more than 150 installations, and on April 1 the Air Force began installing standard computers at eight major commands. More than 200 hospitals and dispensaries used computers to process patient care data. The Air Force was also assigned responsibility by OSD for developing standard data elements, codes, and related features for the joint uniform military pay system.

During fiscal year 1965 the Air Force successfully tested Project LITE (Legal Information Through Electronics), the use of computers for research in fiscal law. The General Accounting Office, Bureau of the Budget, and other Services joined in recommending that LITE, which already covers the entire U.S. Code, Comptroller General Decisions (Volumes 19-41), and the Armed Services Procurement Regulations, be expanded to include all DoD international

agreements and the remaining Comptroller General Decisions. To insure continued and uninterrupted service, the Air Force Accounting and Finance Center was authorized to continue LITE development through fiscal year 1966.

Procurement and Production Management

The Air Force devoted one-half of its personnel and budget to the management of systems and equipment. Its two "business commands," AFSC and AFLC, were responsible for a capital investment which exceeded \$93 billion—the three ICBM programs alone totaling \$17 billion. AFSC administered 50,000 contracts and AFLC honored 27 million requisitions from 2,800 supply points in 86 countries.

The Air Force obligated \$6.84 billion for new procurement during the fiscal year. Of this amount, \$2.38 billion or 34.9 percent was for aircraft and spares, \$808.6 million or 11.8 percent for missiles and spares, and \$3.65 billion or 53.3 percent for modifications, facilities, components and other support programs. Items designated for local purchase totaled 76,000, of which 18 percent were obtained through GSA. In addition, the Air Force ordered communication and electronic equipment costing \$365.1 million.

In fiscal year 1961 the Air Force had obtained competitive bidding on 14.9 percent of the dollar value of its contracts. In fiscal year 1965 it obtained 25.2 percent, exceeding its goal by 3.8 percent. The increase resulted from improved management practices, such as use of the two-step formal advertising method of procurement. A total of \$124 million—almost twice the fiscal year 1963 amount—was obligated under this method.

Air Force efforts to minimize the use of cost-plus-fixed-fee and letter contracts continued. They have now reached an acceptable point. The average age of letter contracts has been reduced, with only one more than 12 months old. The number of contract change notifications decreased from 681 to 377, with an accompanying reduction of \$59.7 million on the outstanding balance.

The use of incentive contracts, warranty clauses, and other provisions to induce contractors to furnish quality products on time was reemphasized. Attempts were also made to obtain more realistic bids based on performance and cost and to reward efficient contractors. This approach was best exemplified by the "total package" procurement planned for the C-5A transport, which represented a radical departure from past practices. One competitive contract—in which as much as \$2 billion may be invested—was to be awarded for development, production, and continuing support of the C-5A, including spare parts and ground support equipment.

During the fiscal year the Air Force small business procurement program reached its peak, both in dollars and percentage. Small concerns received \$1.055 billion in prime contracts, or 12 percent of the \$8.79 billion prime contracts awarded, plus another \$1 billion in awards from large prime contractors whose small business programs were under Air Force surveillance. The highest dollar amount previously received by small concerns was \$1.2 billion in fiscal year 1962. The best percentage figure was 9.8 in fiscal year 1964.

In June 1964 DoD consolidated contract administration and related support functions under DSA, but left to the Services the responsibility of managing contracts for their major weapon systems. In December 1964 the first of DSA's 11 contract administrative services regions (DCSAR) was established in Philadelphia, Pa. By January 1966 all Air Force contract management districts were to be absorbed in the DCSARs, thus transferring to DSA the administrative management for approximately 20 percent of the dollar value of Air Force prime contracts.

At the same time, the Air Force consolidated the management of its own aerospace industry contracts under a new Contract Management Division at Los Angeles, Calif., activated on January 4, 1965, as part of AFSC. The new division became responsible for the activities of nearly 4,000 people who administer contracts with the 25 plants remaining under Air Force cognizance. In addition, the Air Force retained management of its "Inspect and Repair as Necessary" contracts and the 12 plants performing this work.

In December 1964 OSD announced establishment of the Defense Contract Audit Agency (DCAA) to assume, effective July 1, 1965, the auditing previously carried out by each military department. Consequently, the Air Force planned to eliminate the eastern, central, southern, western, and far eastern districts of the Auditor General's office on August 1, 1965. At the same time, the Office of the Auditor General of Headquarters, USAF, was to assume internal audits and related management functions currently performed by the districts.

Additional progress was made by the Air Force in value engineering, aimed at eliminating unnecessary "gold plating," while still obtaining high quality, reliable equipment. Of 379 value engineering proposals reviewed, 215 were approved, resulting in savings of \$20 million, more than twice the amount saved the previous year.

The Air Force presided over a DoD committee organized to revise the armed services procurement regulations so as to encourage contractors to participate more fully in the value engineering program. It was expected that the value engineers would help produce additional savings of some \$30 million annually within the next 3 years.

In the past, as weapon systems or equipment entered production, the Air Force received all contractor engineering drawings for each item and obtained changes as modifications occurred. Since this method of collecting engineering data was becoming increasingly expensive, a new system was instituted whereby contractors retained the drawings and furnished them only upon request. This procedure produced substantial savings when applied to the C-141, and the Air Force considered applying it to other major systems such as the F-111A and the C-5A.

A prime objective of the Air Force engineering data management program, initiated in March 1964, was to foster the interchange of information among the military departments, DSA, and industry. Since there were not enough experienced data managers, the AFIT began a special course to train some 500 managers during fiscal year 1966. All DoD needs were expected to be filled by the end of fiscal year 1968.

Military Assistance Program

Fiscal year 1965 was the sixteenth year of Air Force participation in the MAP. Cumulative Air Force MAP expenditures for the past 16 years have totaled \$10,046.6 million. The European consortium program, which had been established to manufacture some 950 F-104G's, neared completion. Added to the almost completed production of 250 F-104's in the United States and Canada, these fighter-interceptors significantly improved the allied forces in Europe. Concurrently, the cost-sharing production of 200 F-104J's in Japan was so successful that further production was being studied. In addition, deliveries began on the first of 300 F-5's, authorized earlier under the MAP.

Economic prosperity in Western Europe and Japan has virtually eliminated the need for grant aid to those areas. However, the high cost of complex aircraft and missile systems required continued grant assistance to certain allies with limited means, such as Greece and Turkey. Vastly increased assistance was necessary for other parts of the world, mainly Southeast Asia. Grant aid expenditures in fiscal year 1965 amounted to \$434.8 million, exceeding the OSD goal of \$400 million.

Aircraft expenditures under MAP exceeded \$140 million, while spares, modification, and aerospace ground equipment accounted for an additional \$84 million. Other major materiel categories—weapon, ammunition, communication, electronic items, and related supplies—accounted for \$109 million. Supply operations were valued at more than \$37 million, maintenance costs at nearly \$21 million, and training at \$22 million.

By June 30, 1965, the Air Force had delivered more than 15,400 aircraft under MAP, nearly 11,000 of them jets. Allied air forces had about 250 MAP-equipped jet and conventional squadrons, most of which were combat ready.

Logistics Management

Air Force logistical support required \$1.77 billion in fiscal year 1965 and encompassed all the varied activities related to depot operation, materiel transportation, maintenance of equipment, and management of logistics support systems. Yet, because of its streamlined "direct support" logistics concept, the Air Force since 1955 has closed more than 40 of its logistics installations. In a decade, AFLC has reduced its manpower needs by more than 70,000, reaching a low in fiscal year 1965 of about 142,000.

During the year the Air Force began the gradual shutdown of three of AFLC's eight remaining air materiel areas (AMAs), an action expected to save \$86 million annually. The functions of these organizations—the Mobile AMA at Brookley AFB, Ala., San Bernardino AMA at Norton AFB, Calif., and Middletown AMA at Olmstead AFB, Pa.—were to be transferred to other Air Force logistical bases by July 1969.

The use of reserve forces in productive work while undergoing training contributed to effective management. While training during fiscal year 1965, ANG ground electronic and communication maintenance units worked 103,480 man-hours on important Air Force projects.

Supply

The Air Force began standardizing the electronic data processing equipment used in supply operations at 102 bases. In addition, manual and punchcard accounting equipment at 32 bases was replaced with new equipment. Initial operation of the updated system, which began on July 31, 1964, at Andrews AFB, Md., confirmed the soundness of these actions. Complete conversion throughout the Air Force is expected by the end of calendar year 1966.

Reduction of the number of supply items in the Air Force inventory continued, with some 29,700 line items being removed. Furthermore, before acquisition of a new item, the Air Force sought to determine whether an interchangeable or acceptable substitute was already in its inventory or on the DoD excess materiel list. By following the above procedures, the Air Force avoided adding more than 24,800 items to its inventory and saved \$1.5 million and more than 35,000 man-hours of work.

During the year, however, the Air Force had to add 236,939 new items to its inventory as newer and more complex systems and equipment became operational. Nevertheless, by the end of June 1965, the total number of Air Force cataloged items still reflected a decrease of 116,157 from the fiscal year 1964 total of 1,716,060. Concurrently, DSA's weapon system support program, which had been limited to the support of MINUTEMAN the previous year, was expanded to include support for the F/RF-4, F-105, B-52, and KC-135 aircraft.

The Air Force continued to screen its "long supply" assets (items not currently required but retained for contingency purposes or identified as potentially excess). Lists of items which might be usable in current contract productions were forwarded to various procurement offices. They included small pieces of hardware as well as major items such as aircraft engines and test equipment which, when transferred to a contractor, can help reduce costs. Under this program more than \$33 million in assets were furnished to contractors during fiscal year 1965, \$8 million more than in the previous year. Expansion of this program was planned through establishment of a special unit in each AMA to review all "long supply" items against requirements elsewhere.

Air Force success in assuring effective and highly responsive logistics support was reflected in the high operational readiness level of its costly and complex weapon systems. In fiscal year 1958, for example, some 13 percent of Air Force aircraft were not fully operational for lack of spare parts. By fiscal year 1965 this had dropped to only 4 percent.

In fiscal year 1965 the Air Force assumed management responsibility for the storage, disposal, and reclamation of all DoD aircraft, and placed this new responsibility under the Military Aircraft Storage and Disposition Center at Davis-Monthan AFB, Ariz.

Excess and surplus property at the beginning of the fiscal year amounted to \$859.4 million. Excess property originating during the fiscal year amounted to \$2,657.7 million, exceeding disposals by \$607.7 million and resulting in an inventory of \$1,467.1 million on hand on June 30, 1965. The lag in disposals was caused by the situation in Southeast Asia.

Maintenance

Depot maintenance and modification of equipment during fiscal year 1965 was valued at approximately \$1.5 billion, of which \$784.6 million was expended on aircraft frames alone.

Major achievements included completion of the depot portion of TITAN II modernization and the F-100 rewiring modifications. Technicians of the San Antonio AMA continued to return B-52 and B-58

bombers to SAC ahead of schedule. They reduced average overhaul time of these aircraft from 79 to 74 days for the B-52 and from 58 to 52 days for the B-58.

Progress in depot and base maintenance was made through the use of newer, nondestructive testing techniques. The Air Force was able to extend intervals between overhauls of aircraft engines and to lengthen time between change cycles of aircraft components. An outstanding example was the dramatic increase from 400 to 1,600 hours in the hot section inspection interval of the B-52's J-57 engines. The time between overhauls of the C-130's T-56 engines was raised from 1,500 to 1,800 hours, and the time change cycle on the T-38 horizontal tail actuator was doubled from 500 to 1,000 hours.

While improving depot maintenance, the Air Force continued to enhance base self-sufficiency. For example, initial tests with spectrometric analysis of aviation oil proved its value in predicting the rate of wear of aircraft engines, permitting their removal before failure. Consequently, the Air Force decided to place in operation a spectrometer at each of its air bases.

Base Maintenance

During the past decade the value of Air Force real property has grown 166 percent—from \$6 billion in fiscal year 1955 to \$16.6 billion at the end of fiscal year 1965. By contrast, the costs for operation and maintenance of these facilities have increased only 77 percent. During this decade the Air Force has lowered the number of base maintenance personnel by 16,000—from 108,000 to 92,000.

Through an expanded system of jet engine base maintenance, the number of engines overhauled at Air Force depots continued to decrease—from 18,000 in fiscal year 1961 to 13,000 in 1965. In the same period, overhaul costs dropped from \$80 million to \$60 million. The total value of aircraft engines in the Air Force inventory as of June 30, 1965, was approximately \$6.1 billion.

The Air Force instituted Project Prime BEEF (Base Engineer Emergency Forces), which provided for the realignment and training of the military portion of the civil engineering force to fill an emergency combat support role. Thereafter, specific tasks for both military and civilian personnel of USAF's 94,000-man civil engineering force were identified and steps taken to adjust the military-civilian ratio by replacing noncombatant military personnel with civilians. Three thousand positions are scheduled for conversion during fiscal year 1966. Basically, Prime BEEF provides base recovery teams for any type of emergency at each Air Force installation and creates for the first time deployable engineer teams for tactical support and

for other contingencies on a worldwide basis. When not deployed or operating under emergency conditions, BEEF personnel conduct normal day-to-day maintenance and operation at their home bases. There are 70 deployable teams, each with 60 men, throughout the Air Force. During fiscal year 1965 some of these contingency teams were sent to the Dominican Republic while others were alerted for deployment to Southeast Asia.

There were 2,482 fires reported during the fiscal year, 462 less than the previous year. Aircraft accounted for 363 (an increase of 50); the rest were structural (buildings, material, equipment, and grounded aircraft). The structural fires caused the deaths of five persons and property damage totaling \$3.9 million, excluding the fire loss incurred on January 5 at Eglin AFB, Fla., of a radar installation under construction for the Air Force but still in custody of the contractor. Total aircraft losses from crashes and fires amounted to \$218.7 million, \$14.8 million more than the previous year.

At the end of June 1965 the Air Force had 209 active major installations, a decrease of 10 since last year. They were classified as follows:

Type	United States	Overseas	Total
Operational.....	76	46	122
Operational Support:			
Flying.....	6	6	12
Nonflying.....	12	4	16
Training.....	36	0	36
Research and Test.....	9	0	9
Logistics.....	10	0	10
Foreign Bases (Non-U.S. Property).....	0	4	4
Total.....	149	60	209

Transportation

A new base vehicle reporting system, involving the use of base credit cards, was tested with satisfactory results and was scheduled for introduction throughout the Air Force in early 1966. The new system is similar to that of most commercial oil companies and greatly simplifies the preparation of motor vehicle operation and maintenance cost reports.

The Air Force reduced the number of inoperative vehicles by reinstating contractor-operated parts stores. Tested several years ago, this service proved so successful that some 75 stores were opened by September 1964. Opening of additional stores, however, was halted pending results of a study of all contract services.

The Air Force together with representatives of the other Services and DSA revised joint procedures for management of administrative motor vehicles. Covering such activities as transportation of dependent school children, hiring of motor vehicles, and parking and garaging of Government vehicles, the revised procedure will be incorporated in a new manual to be published by the Army in 1966. It should improve management of the Air Force motor fleet.

Three more airbases were connected to commercial bulk aviation fuel pipelines, bringing the total number of bases receiving this service to 48. Eleven other bases will soon have similar pipeline service or are being considered for it. Availability of commercial pipelines saved the Air Force more than \$6.5 million a year and an estimated cumulative total since 1954 of more than \$47.5 million. The commercial companies also provided reserve fuel storage of 3 million barrels for these bases at no cost to the Air Force.

In late 1964 the Air Force authorized the Campsa Spanish Petroleum Company to use the Air Force pipeline in Spain for the transport of the firm's petroleum products. Since the pipeline was designed to carry peakloads in excess of U.S. military requirements, this arrangement does not weaken Air Force capability. Furthermore, the contract signed on January 21, 1965, assured Air Force use of the total pipeline capacity in the event of military necessity. It will produce gold flow savings of \$1.6 million per year.

Inspection

The Inspector General conducted 70 inspections of operational readiness, support services, and economical management. Three of these tested and reaffirmed the management effectiveness of SAC, TAC, and ADC. Inspectors also conducted a regular industrial management assistance survey of the General Dynamics/Astronautics Corporation at Fort Worth, Tex., and several short surveys of smaller industrial concerns and one nonprofit corporation.

Inspections evaluated the ABRES, MINUTEMAN II, the TITAN III standard launch vehicle system, and the management of the Office of Aerospace Research and the Research and Technology Division. Other inspections assessed the efficiency of communications in PACAF and USAFSO, the ADC management control and rating system and the readiness and weapons capability of ANG units.

Safety

Despite increasing and more complex operations, the Air Force again improved its flying safety record. The major aircraft accident

rate dropped from the fiscal year 1964 all-time low of 4.5 accidents per 100,000 flying hours to 4.4 in fiscal year 1965.

Major aircraft accidents declined from 300 to 292. Fatal aircraft accidents decreased by 1, from 111 in fiscal year 1964 to 110 in fiscal year 1965. However, the number of fatalities rose from 315 to 399, primarily because of two accidents involving many passengers and several bystanders.

Inspector General personnel participated in the investigations of 30 aircraft accidents, among which was a July 1964 midair collision of a SAC KC-135 and a TAC F-105. As a result of the latter investigation, several changes were made in air refueling practices and the two commands were required to initiate joint reviews of the refueling units.

Flying safety surveys continued to play a major role in accident prevention. Units in the United States, Puerto Rico, and the Panama Canal Zone were surveyed during the year. Particular emphasis was placed on inspections of joint task forces which were required to initiate preventive and corrective actions where applicable. In addition, flight safety inspectors surveyed an ANG refueling group to identify improper operational and maintenance procedures. Safety briefings were prepared for Century series aircraft to assist ANG units to convert to newer models.

Among the year's most significant flight safety studies was one on F-105 maintenance. Through an analysis of all F-105 accident reports since 1958 and some 500 accident reports, the study identified engineering and design deficiencies and various other factors responsible for the recent increase in F-105 accidents and the mid-1964 grounding of the fleet. Subsequently, the Air Force in March 1965 initiated a safety modification program at seven locations.

During the fiscal year briefings on flying safety were presented to the Air Council and to the major air commands. Maintenance and materiel problems, the reduction of training flying hours, and the current flying experience of Air Force pilots were reviewed. The extended use of and heavy strain on tactical fighter aircraft and the resulting flying hazards were also discussed.

Two accidents involving nuclear bombs and warheads were investigated. In both cases, nuclear safety devices functioned as intended and no detonation occurred. Safety surveys and operational reviews of nuclear weapon systems at 39 bases in addition to 26 other inspections also were carried out. Safety teams participated actively in preparations at Vandenberg AFB for the launch of the SNAP-10A unit on April 3, 1965.

The Air Force prepared nuclear safety rules for new weapon systems and recommended 10 changes. The human reliability program continued to function effectively. Established in February 1962, this

Air Force program was subsequently adopted by DoD. Its basic principles and procedures for predicting human reliability have been employed or are under consideration by 19 industrial firms, the FAA, and the Royal Canadian Air Force. NATO country representatives also indicated that similar programs, tailored to their needs, would be instituted.

Missile safety officers helped formulate a proposed joint agreement for Air Force-NASA investigation of space program accidents. Two missile-space accidents and one missile incident were investigated. Inspector-flight surgeons participated as aeromedical monitors for GEMINI space flights. Safety officials also conducted 3 missile safety surveys, 4 major command surveys, 3 operational readiness inspections, and made 54 miscellaneous visits related to various aspects of missile safety.

The benefits from the Air Force missile accident prevention program also were evidenced during deactivation of the ATLAS E and F and TITAN I weapon systems. Although several missiles were damaged while in the custody of a commercial transportation agency, no mishaps occurred during removal of the missiles from their coffins or silos.

Ground accidents declined by 9 percent compared with fiscal year 1964. This improvement resulted partly from a special 101-day traffic safety campaign, which yielded a 16 percent reduction in Air Force traffic fatalities between Memorial and Labor Days. A new traffic safety training program for airmen 25 years of age or younger was initiated. Nevertheless, automobile accidents caused 427 fatalities and again accounted for the majority of Air Force deaths during the year.

Ground safety inspectors participated in 23 safety surveys, inspections, and staff assistance visits to field organizations. They also conducted medical surveys and inspections at six major commands and visited 11 Air Force bases to review health aspects of the use of radioisotopes and machine-produced radiation.

For outstanding ground safety performance in 1964, the National Safety Council selected the Air Force for the "Award of Honor," the fifteenth consecutive year it has received this honor. The Air Force also received "honorable mention" for the President's Safety Award for the second year. In addition, two Air Force safety training films were selected for two awards by the National Committee of Films for Safety.

Security and Law Enforcement

Air Force security agencies completed 615,600 investigations, an increase of 4,600 over the previous year. Personnel security investiga-

tions accounted for 528,000; criminal and procurement fraud, 21,800; and counterintelligence, 65,800.

Criminal investigations led to the recovery of \$840,000. Procurement investigations netted over \$105,000. Curtailment of temporary duty through improved management of special investigations and personnel resulted in savings of \$184,500.

An evaluation of Air Force security practices and procedures in Southeast Asia identified deficiencies in training, equipment, and protection of airbases. The Air Force took steps to resolve problems which could be remedied immediately. It also studied the use of sentry dogs to obtain greater security in this area.

The Air Force evaluated ADC requirements for aircraft dispersal to insure that there would be the greatest degree of protection and the most economical use of funds in construction. Personnel security surveys were conducted of major commands and nonprofit Air Force contractors.

Security personnel participated in the preparation of a joint agreement setting forth procedures to be followed by DoD, State Department, and Office of Emergency Planning in the event of a national emergency.

The state of discipline in the Air Force continued to improve, as indicated by the steady yearly decline since 1958 in the rate of absences without leave and in courts-martial. The Air Force eliminated 20 confinement facilities during the fiscal year.

Harold Brown

HAROLD BROWN,

Secretary of the Air Force.

APPENDIX

Appendix

STATISTICAL INFORMATION

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Note: Subtotals in these tables may not add to totals due to rounding.

Table 1

MAJOR FORCES BY DEPARTMENT

	June 30, 1961 (actual)	June 30, 1963 (actual)	June 30, 1964 (actual)	June 30, 1965 (actual)
DEPARTMENT OF DEFENSE				
Active Duty Personnel.....	2,483,771	2,699,677	2,687,409	2,655,389
Active Aircraft Inventory.....	31,262	30,781	30,109	29,864
DEPARTMENT OF THE ARMY				
Divisions.....	14	16	16	16
Regiments/RCTs.....	6	4	4	4
Armored Combat Commands.....	1			
Brigades.....	2	4	7	7
Battle Groups.....	8	6		
Special Forces Groups.....	3	6	7	7
Army Missile Commands.....	4	2	2	2
Surface-to-Surface Missile Battalions.....	41½	48½	38	38
Air Defense Missile Battalions.....	76¼	63¼	58¼	56¼
Active Duty Personnel.....	858,622	975,916	973,238	969,066
Active Aircraft Inventory.....	5,564	6,001	6,338	6,933
DEPARTMENT OF THE NAVY				
Commissioned Ships in Fleet.....	819	857	859	880
Warships.....	(375)	(383)	(388)	(407)
Other.....	(444)	(474)	(471)	(473)
Carrier Air Groups.....	17	17	17	17
Carrier Antisub Air Groups.....	11	11	11	11
Patrol and Warning Squadrons.....	38	35	35	35
Marine Divisions.....	3	3	3	3
Marine Air Wings.....	3	3	3	3
Active Duty Personnel.....	803,998	854,330	857,373	861,661
Navy.....	(627,089)	(664,647)	(667,596)	(671,448)
Marine Corps.....	(176,909)	(189,683)	(189,777)	(190,213)
Active Aircraft Inventory.....	8,793	8,756	8,391	8,056
DEPARTMENT OF THE AIR FORCE				
USAF Combat Wings.....	88	86	83	78
Strategic Wings.....	(37)	(33)	(33)	(28)
Air Defense Wings.....	(19)	(18)	(14)	(13)
Tactical Wings (including airlift).....	(32)	(35)	(36)	(37)
USAF Combat Support Flying Squadrons.....	121	134	130	120
Active Duty Personnel.....	821,151	869,431	856,798	824,662
Active Aircraft Inventory.....	16,905	16,024	15,380	14,875

Table 2

MAJOR FORCES BY MISSION

	June 30, 1961 (actual)	June 30, 1963 (actual)	June 30, 1964 (actual)	June 30, 1965 (actual)
STRATEGIC RETALIATORY FORCES				
Intercontinental Ballistic Missiles				
MINUTEMAN Squadrons-----		2	12	16
TITAN Squadrons-----		7	12	6
ATLAS Squadrons-----	4	13	13	-----
POLARIS Submarines-----	5	12	21	29
Strategic Bombers				
B-52 Wings-----	13	14	14	14
B-58 Wings-----	1	2	2	2
B-47 Wings-----	20	13	10	5
CONTINENTAL AIR AND MISSILE DEFENSES				
Manned Fighter Interceptor Squadrons-----	42	42	40	39
Interceptor Missile (BOMARC) Squadrons-----	7	8	8	6
Army Air Defense Missile Battalions ¹ -----	49½	31½	26½	23½
GENERAL PURPOSE FORCES				
Army Divisions-----	² 14	16	16	16
Army Surface-to-Surface Missile Battalions-----	41½	48½	38	38
Army Air Defense Missile Battalions-----	26¾	31¾	31¾	32¾
Army Special Forces Groups-----	3	6	7	7
Warships				
Attack Carriers-----	15	15	15	16
Antisub Warfare Carriers-----	9	9	9	9
Nuclear Attack Submarines-----	13	16	19	21
Other-----	328	326	322	331
Amphibious Assault Ships-----	110	132	133	135
Carrier Air Groups (Attack and Antisub Warfare)-----	28	28	28	28
Marine Corps Divisions/Air Wings---	3/3	3/3	3/3	3/3
USAF Tactical Forces Aircraft Squadrons-----	93	109	112	117
AIRLIFT AND SEALIFT FORCES				
Airlift Aircraft Squadrons				
C-130 through C-141-----	16	26	34	38
C-118 through C-124-----	35	31	27	19
Troop and Cargo Ships and Tankers--	101	101	101	109

¹ Decrease reflects phaseout of NIKE-AJAX and transfer of NIKE-HERCULES battalions to Army National Guard.

² Includes three training divisions not ready for combat.

Table 3

FINANCIAL SUMMARY ¹

(In Billions of Dollars)

	Fiscal year 1962	Fiscal year 1963	Fiscal year 1964	Fiscal year 1965	Fiscal year 1966
NEW OBLIGATIONAL AUTHORITY--	49.4	51.1	50.9	49.7	48.6
Financing Adjustments ² -----	1.3	0.8	0.9	1.1	3.2
TOTAL OBLIGATIONAL AUTHORITY ³ -----	50.7	51.9	51.9	50.9	51.7
BY PROGRAM					
Strategic Offensive Forces-----	9.0	8.4	7.3	5.3	4.5
Continental Air and Missile Defense Forces-----	2.3	2.0	2.1	1.8	1.8
General Purpose Forces-----	17.4	17.6	17.7	18.1	19.0
Airlift/Sealift Forces-----	1.2	1.4	1.3	1.5	1.6
Reserve and Guard Forces-----	1.8	1.8	2.0	2.1	2.0
Research and Development-----	4.2	5.1	5.3	5.1	5.4
General Support-----	12.1	13.0	13.7	14.3	14.6
Retired Pay-----	0.9	1.0	1.2	1.4	1.5
Military Assistance-----	1.8	1.6	1.2	1.2	1.3
BY DEPARTMENT AND AGENCY					
Department of the Army-----	12.5	12.0	12.5	12.0	12.4
Department of the Navy-----	14.7	14.9	14.8	14.7	15.3
Department of the Air Force-----	19.7	20.6	20.3	19.4	18.9
Office of Civil Defense-----	0.3	0.1	0.1	0.1	0.2
Defense Agencies/Office of the Secre- tary of Defense ⁴ -----	0.3	0.9	1.1	1.2	1.3
Retired Pay-----	0.9	1.0	1.2	1.4	1.5
Defense Family Housing ⁵ -----	0.5	0.7	0.7	0.7	0.7
Military Assistance-----	1.8	1.6	1.2	1.2	1.3

¹ As presented in budget estimates of Jan. 25, 1965.² Consists of reimbursements, transfers, reprogramming, and other adjustments.³ 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. Excludes cost of nuclear warheads.⁴ Exclusive of "Retired Pay" and "Family Housing."⁵ Funds for this activity were appropriated to the military departments in fiscal year 1962.

Table 4

NEW OBLIGATIONAL AVAILABILITY FOR MILITARY FUNCTIONS AND MILITARY ASSISTANCE FISCAL YEAR 1965

(In Millions of Dollars)

	Department of Defense	Army	Navy	Air Force	Defense-wide activities ¹
TOTAL.....	² 50, 687	12, 052	14, 908	19, 300	4, 427
MILITARY PERSONNEL.....	14, 849	4, 768	4, 018	4, 664	1, 399
Active Forces.....	12, 699	4, 270	3, 888	4, 542	-----
Reserve Forces.....	751	498	131	122	-----
Retired Pay.....	1, 399	-----	-----	-----	1, 399
OPERATION AND MAINTENANCE.....	12, 603	3, 738	3, 447	4, 856	563
PROCUREMENT.....	13, 836	1, 783	5, 778	6, 213	62
Aircraft.....	5, 962	451	1, 888	3, 623	-----
Missiles.....	2, 615	234	666	1, 715	-----
Ships.....	1, 905	-----	1, 905	-----	-----
Ordnance, etc.....	1, 642	766	540	335	1
Electronics and Communications.....	1, 039	178	427	419	16
Other Procurement.....	672	155	351	121	46
RDT&E.....	6, 483	1, 402	1, 388	3, 175	518
Military Sciences.....	974	160	178	130	506
Aircraft.....	1, 057	70	248	738	-----
Missiles.....	1, 804	629	378	797	-----
Ships.....	281	1	280	-----	-----
Astronautics.....	886	15	34	837	-----
Ordnance, etc.....	339	191	148	-----	-----
Other Equipment.....	604	264	58	282	-----
Program-wide Management.....	526	72	63	391	-----
Emergency Fund.....	12	-----	-----	-----	12
CIVIL DEFENSE.....	105	-----	-----	-----	105
CONSTRUCTION.....	1, 049	361	277	392	19
Active Forces.....	1, 008	345	270	373	19
Reserve Forces.....	42	16	7	19	-----
FAMILY HOUSING.....	631	-----	-----	-----	631
MILITARY ASSISTANCE.....	1, 130	-----	-----	-----	1, 130

¹ Includes the Office of the Secretary of Defense, Joint Chiefs of Staff, Defense agencies, Office of Civil Defense, Military Assistance, etc.

² Includes new obligational authority of \$50,418 million, transfers from the revolving funds in lieu of new appropriation of \$193 million, and \$75 million of contract authority for the Military Assistance Program.

Table 5

OBLIGATIONS FOR MILITARY FUNCTIONS AND MILITARY ASSISTANCE FISCAL YEARS 1964-65

(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 1964...	10,647	51,333	4,711	66,692	55,187	11,431
Fiscal Year 1965...	11,431	50,687	4,841	66,959	54,329	12,537
BY FUNCTIONAL TITLE						
<i>Military Personnel</i>						
Fiscal Year 1964...	(²)	14,204	258	14,462	14,436	-----
Fiscal Year 1965...	-----	14,849	154	15,003	14,970	-----
<i>Operation and Maintenance</i>						
Fiscal Year 1964...	101	11,705	1,683	13,489	13,403	49
Fiscal Year 1965...	49	12,603	1,729	14,382	14,267	75
<i>Procurement</i>						
Fiscal Year 1964...	7,093	15,645	1,626	24,365	16,505	7,860
Fiscal Year 1965...	7,860	13,836	1,780	23,476	14,672	8,805
<i>RDT&E</i>						
Fiscal Year 1964...	955	6,984	529	8,468	7,368	1,099
Fiscal Year 1965...	1,099	6,483	657	8,239	7,003	1,224
<i>Civil Defense</i>						
Fiscal Year 1964...	18	112	(³)	130	113	16
Fiscal Year 1965...	16	105	1	122	95	23
<i>Construction</i>						
Fiscal Year 1964...	870	949	498	2,317	1,520	798
Fiscal Year 1965...	798	1,049	450	2,297	1,506	791
<i>Family Housing</i>						
Fiscal Year 1964...	125	644	11	780	634	138
Fiscal Year 1965...	138	631	8	777	662	111
<i>Military Assistance</i>						
Fiscal Year 1964...	1,484	1,090	105	2,679	1,209	1,471
Fiscal Year 1965...	1,471	1,130	63	2,664	1,155	1,508

See footnotes at end of table.

Table 5—Continued
OBLIGATIONS FOR MILITARY FUNCTIONS AND MILITARY ASSISTANCE
FISCAL YEARS 1964-65—Continued

(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 1964---	1, 556	12, 659	2, 138	16, 353	13, 983	2, 362
Fiscal Year 1965---	2, 362	12, 052	1, 992	16, 406	13, 999	2, 388
<i>Navy</i>						
Fiscal Year 1964---	4, 264	15, 019	764	20, 048	15, 362	4, 663
Fiscal Year 1965---	4, 663	14, 908	1, 208	20, 779	15, 630	5, 127
<i>Air Force</i>						
Fiscal Year 1964---	3, 058	19, 501	1, 446	24, 006	21, 370	2, 634
Fiscal Year 1965---	2, 634	19, 300	1, 318	23, 251	20, 036	3, 214
<i>OSD and Defense Agencies</i>						
Fiscal Year 1964---	268	2, 951	257	3, 476	3, 151	285
Fiscal Year 1965---	285	3, 192	260	3, 737	3, 413	277
<i>Office of Civil Defense</i>						
Fiscal Year 1964---	18	112	(²)	130	113	16
Fiscal Year 1965---	16	105	1	122	95	23
<i>Military Assistance</i>						
Fiscal Year 1964---	1, 484	1, 090	105	2, 679	1, 209	1, 471
Fiscal Year 1965---	1, 471	1, 185	8	2, 664	1, 155	1, 508

¹ Consists of preclosing balance minus expired funds.

² Less than \$500,000.

Table 6

EXPENDITURES FOR MILITARY FUNCTIONS AND MILITARY ASSISTANCE
FISCAL YEARS 1964-65

(In Millions of Dollars)

	Unex- pended balance brought forward	New expendi- ture avail- ability	Total available for ex- penditure	Expendi- tures	Unex- pended balance carried forward ¹
DEPARTMENT OF DE- FENSE					
Fiscal Year 1964.....	32, 408	51, 012	83, 420	51, 245	31, 969
Fiscal Year 1965.....	31, 959	50, 548	82, 508	47, 401	34, 892
BY FUNCTIONAL TITLE					
<i>Military Personnel</i>					
Fiscal Year 1964.....	442	14, 204	14, 646	14, 195	354
Fiscal Year 1965.....	354	14, 849	15, 203	14, 771	366
<i>Operation and Maintenance</i>					
Fiscal Year 1964.....	1, 742	11, 705	13, 447	11, 932	1, 435
Fiscal Year 1965.....	1, 435	12, 603	14, 039	12, 349	1, 589
<i>Procurement</i>					
Fiscal Year 1964.....	19, 705	15, 645	35, 351	15, 351	19, 990
Fiscal Year 1965.....	19, 990	13, 836	33, 826	11, 839	21, 980
<i>RDT&E</i>					
Fiscal Year 1964.....	4, 065	6, 984	11, 049	7, 021	4, 025
Fiscal Year 1965.....	4, 025	6, 482	10, 507	6, 236	4, 259
<i>Civil Defense</i>					
Fiscal Year 1964.....	113	112	224	107	112
Fiscal Year 1965.....	112	105	218	93	103
<i>Construction</i>					
Fiscal Year 1964.....	1, 392	950	2, 342	1, 026	1, 315
Fiscal Year 1965.....	1, 315	1, 051	2, 366	1, 007	1, 359
<i>Family Housing</i>					
Fiscal Year 1964.....	278	644	921	580	327
Fiscal Year 1965.....	327	631	959	619	334
<i>Military Assistance</i>					
Fiscal Year 1964.....	2, 389	1, 090	3, 479	1, 485	1, 994
Fiscal Year 1965.....	1, 994	1, 185	3, 179	1, 229	1, 949
<i>Revolving and Management Funds</i>					
Fiscal Year 1964.....	2, 283	-321	1, 961	² -452	2, 406
Fiscal Year 1965.....	2, 406	-193	2, 212	² -741	2, 953

See footnotes at end of table.

Table 6—Continued

EXPENDITURES FOR MILITARY FUNCTIONS AND MILITARY ASSISTANCE
FISCAL YEARS 1964-65—Continued

(In Millions of Dollars)

	Unex- pended balance brought forward	New expendi- ture avail- ability	Total available for ex- penditure	Expendi- tures	Unex- pended balance carried forward ¹
BY AGENCY					
<i>Army</i>					
Fiscal Year 1964-----	5,386	12,563	17,949	12,050	5,811
Fiscal Year 1965-----	5,811	12,017	17,828	11,600	6,147
<i>Navy</i>					
Fiscal Year 1964-----	13,771	14,929	28,700	14,526	14,143
Fiscal Year 1965-----	14,143	14,908	29,052	13,399	15,615
<i>Air Force</i>					
Fiscal Year 1964-----	9,764	19,466	29,230	20,509	8,688
Fiscal Year 1965-----	8,688	19,259	27,947	18,216	9,712
<i>OSD and Defense</i>					
<i>Agencies</i>					
Fiscal Year 1964-----	985	2,851	3,836	2,574	1,210
Fiscal Year 1965-----	1,210	3,074	4,284	2,865	1,364
<i>Office of Civil Defense</i>					
Fiscal Year 1964-----	114	112	226	107	114
Fiscal Year 1965-----	114	105	219	93	104
<i>Military Assistance</i>					
Fiscal Year 1964-----	2,389	1,090	3,479	1,485	1,994
Fiscal Year 1965-----	1,994	1,185	3,179	1,229	1,949

¹ Net balance after withdrawals and restorations of unexpended balances as provided in Public Law 798.² Reimbursements exceeded expenditures.

Table 7

DEFENSE BUDGET
FISCAL YEARS 1965-66¹

(New Obligational Availability in Millions of Dollars)

	1965		1966 Amounts requested ⁴
	Amounts requested ²	Amounts appropriated ³	
BY FUNCTIONAL TITLE			
Military Personnel-----	14, 895	14, 849	15, 030
Operation and Maintenance-----	12, 528	12, 603	12, 472
Procurement-----	13, 756	13, 836	11, 412
RDT&E-----	6, 722	6, 483	6, 709
Civil Defense-----	358	105	194
Military Construction-----	1, 168	1, 049	1, 313
Family Housing-----	711	631	736
Emergency Fund, Southeast Asia-----	700	⁵ (700)	-----
Total, Military Functions-----	50, 838	49, 557	47, 865
Military Assistance-----	1, 130	1, 130	1, 170
Total-----	51, 968	50, 687	49, 035
BY AGENCY			
Army-----	12, 117	12, 052	11, 576
Navy-----	14, 859	14, 908	14, 417
Air Force-----	19, 368	19, 300	18, 077
OSD-Defense Agencies-----	4, 135	3, 192	3, 601
Civil Defense-----	358	105	194
Military Assistance-----	1, 130	1, 130	1, 170

¹ Excludes funds made available to the Department of Defense for Army civil works and civil functions—\$1,285 million in 1965 and \$1,399 million in 1966.

² Includes new obligational authority of \$51,693 million, transfers from the revolving funds in lieu of new appropriations of \$200 million, and contract authority of \$75 million (for the Military Assistance Program).

³ Includes new obligational authority of \$50,418 million, actual transfers from the revolving funds in lieu of new appropriations of \$193 million (Congress provided authority to transfer \$240 million), and \$75 million of contract authority (military assistance).

⁴ Amounts included in budget estimates of Jan. 25, 1965. Includes new obligational authority of \$48,565 million and transfers from the revolving funds in lieu of new appropriations of \$470 million.

⁵ Distributed in the above accounts.

REDUCTION IN WORKING CAPITAL FUNDS FISCAL YEARS 1953-65

Table 8

(In Millions of Dollars)

	Transfers to other accounts in lieu of new appropriations ¹	Congressional rescissions	Total reductions
TOTAL, FISCAL YEARS 1953-65.....	3, 670. 1	3, 406. 0	7, 076. 1
STOCK FUNDS.....	3, 263. 1	3, 049. 0	6, 312. 1
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
1964.....	³ 171. 3		171. 3
1965.....	³ 193. 3		193. 3
INDUSTRIAL FUNDS.....	407. 0	357. 0	764. 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
1964.....	³ 150. 0		150. 0
1965.....			

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 shipbuilding costs.

Table 9

U.S. DEFENSE EXPENDITURES AND RECEIPTS ENTERING THE INTERNATIONAL BALANCE OF PAYMENTS

(In Millions of Dollars)

	Fiscal year 1961	Fiscal year 1964	Fiscal year 1965
DEPARTMENT OF DEFENSE EXPENDITURES			
<i>Support of U.S. Forces</i>	2, 452. 1	2, 557. 2	2, 506. 7
Expenditures by Military and Ci- vilian Personnel ¹	788. 8	870. 3	922. 3
Hire of Foreign Nationals.....	366. 6	424. 8	407. 9
Procurement:			
Major Equipment.....	61. 6	92. 5	78. 4
Construction.....	157. 5	93. 9	103. 7
Petroleum Products ²	257. 2	280. 6	270. 1
Other Materials and Supplies ³	304. 5	193. 0	144. 8
Operation and Maintenance (Other) ⁴	515. 0	417. 7	401. 6
Other Payments ⁴		184. 4	177. 9
<i>Military Assistance</i>	311. 9	235. 3	162. 7
Offshore Procurement.....	155. 1	117. 5	74. 6
NATO Infrastructure.....	105. 2	61. 4	34. 0
Other.....	51. 6	56. 4	54. 1
<i>Net Change in Foreign Currency Holdings</i>	-2. 0	-8. 0	0. 8
OTHER AGENCIES' EXPENDITURES ⁵	343. 3	135. 8	95. 1
TOTAL EXPENDITURES.....	3, 105. 3	2, 920. 3	2, 765. 3
RECEIPTS.....	-318. 9	-1, 227. 4	-1, 322. 6
Cash ⁶	-318. 9	-1, 203. 9	-1, 253. 7
Barter.....		-23. 5	-68. 9
NET ADVERSE BALANCE.....	2, 786. 4	1, 692. 9	1, 442. 7

¹ Includes expenditures for goods and services by nonappropriated fund activities.² Beginning in fiscal year 1964, includes expenditures for petroleum procured through Operation and Maintenance accounts as well as through stock fund accounts.³ Beginning in fiscal year 1964, includes primarily expenditure through Operation and Maintenance and stock fund accounts.⁴ Beginning with fiscal year 1964, data previously reported as contractual services have been divided into two categories, i.e. "Operation and Maintenance (Other)," which includes all O&M payments not included elsewhere, and "Other Payments," which includes expenditures for retired pay, claims, research and development, industrial fund activities, etc.⁵ Expenditures entering balance of international payments by the Atomic Energy Commission and other agencies included in the NATO definition of defense expenditures.⁶ Includes only: (1) Sales of military items through Department of Defense; (2) reimbursement to United States for logistical support of United Nations forces and defense forces of other nations; (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.

Table 10

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION PROGRAMS OBLIGATIONS

(In Millions of Dollars)

	Fiscal year 1964 actual	Fiscal year 1965 actual	Fiscal year 1966 estimated ¹
TOTAL.....	7, 348.4	6, 860.4	7, 195.5
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION.....	6, 872.9	6, 386.9	6, 700.0
Military Sciences.....	939.4	619.8	1, 022.2
Aircraft and Related Equipment.....	993.1	1, 094.9	991.9
Missiles and Related Equipment.....	2, 141.2	1, 955.0	1, 758.0
Military Astronautics and Related Equipment.....	1, 275.2	896.7	1, 033.9
Ships, Small Craft, and Related Equip- ment.....	250.3	257.0	321.6
Ordnance, Combat Vehicles, and Re- lated Equipment.....	312.3	342.2	372.3
Other Equipment.....	518.5	774.6	606.8
Management and Support.....	442.9	446.7	443.3
Emergency Fund ²			150.0
SUPPORTING ACTIVITIES.....	475.5	473.5	495.5
Military Personnel.....	263.0	277.3	265.1
Procurement.....	70.0	81.9	70.0
Operation and Maintenance.....	40.1	34.5	35.2
Civil Defense.....	11.8	11.3	15.0
Military Construction.....	90.6	68.5	110.2

¹ As presented in budget estimates of Jan. 25, 1965.² The emergency funds used during fiscal years 1964 and 1965 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, 1964-----	2,687,409	973,238	667,596	189,777	856,798
June 30, 1965-----	2,655,389	969,066	671,448	190,213	824,662
OFFICERS					
June 30, 1964-----	337,502	110,870	76,400	16,843	133,389
June 30, 1965-----	338,822	112,120	77,866	17,258	131,578
<i>Regulars</i>					
June 30, 1964-----	164,049	41,463	48,931	10,970	62,685
June 30, 1965-----	168,338	42,368	49,303	11,674	64,993
<i>Reserves¹</i>					
June 30, 1964-----	173,453	69,407	27,469	5,873	70,704
June 30, 1965-----	170,484	69,752	28,563	5,584	66,585
ENLISTED					
June 30, 1964-----	2,338,153	860,514	584,700	172,567	720,372
June 30, 1965-----	2,304,929	854,929	587,183	172,640	690,177
OFFICER CANDIDATES					
June 30, 1964-----	11,754	1,854	6,496	367	3,037
June 30, 1965-----	11,638	2,017	6,399	315	2,907

¹ Members of reserve components, including National Guard, plus a small number of officers without component in the Army of the United States or 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, 1964	2, 687, 409 (100. 0)	973, 238 (100. 0)	667, 596 (100. 0)	189, 777 (100. 0)	856, 798 (100. 0)
June 30, 1965	2, 655, 389 (100. 0)	969, 066 (100. 0)	671, 448 (100. 0)	190, 213 (100. 0)	824, 662 (100. 0)
SHORE ACTIVITIES					
June 30, 1964	2, 310, 254 (85. 6)	973, 238 (100. 0)	288, 048 (43. 1)	183, 170 (96. 5)	856, 798 (100. 0)
June 30, 1965	2, 262, 816 (85. 2)	969, 066 (100. 0)	289, 700 (43. 1)	179, 388 (94. 3)	824, 662 (100. 0)
<i>Continental U.S.</i>					
June 30, 1964	1, 611, 181 (59. 9)	581, 009 (59. 7)	243, 602 (36. 5)	140, 481 (74. 0)	646, 089 (75. 4)
June 30, 1965	1, 570, 168 (59. 1)	559, 400 (57. 7)	246, 287 (36. 7)	135, 140 (71. 0)	629, 341 (76. 3)
<i>Outside Continental U.S.</i>					
June 30, 1964	690, 073 (25. 7)	392, 229 (40. 3)	44, 446 (6. 6)	42, 689 (22. 5)	210, 709 (24. 6)
June 30, 1965	692, 648 (26. 1)	409, 666 (42. 3)	43, 413 (6. 4)	44, 248 (23. 3)	195, 321 (23. 7)
AFLOAT AND MOBILE ACTIVITIES					
June 30, 1964	386, 155 (14. 4)	-----	379, 548 (56. 9)	6, 607 (3. 5)	-----
June 30, 1965	392, 573 (14. 8)	-----	381, 748 (56. 9)	10, 825 (5. 7)	-----

Table 13

MILITARY PERSONNEL BY GRADE JUNE 30, 1965

(Percentages Listed in Parentheses)

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL.....	2,655,389	969,066	671,448	190,213	824,662
OFFICERS.....	338,822	112,120	77,866	17,258	131,578
Percent of Total.....	(12.8)	(11.6)	(11.6)	(9.1)	(16.0)
Gen. of the Army—Fleet Admiral.....	3	2	1		
General—Admiral.....	36	14	9	1	12
Lt. General—Vice Admiral.....	119	41	35	6	37
Maj. Gen. } —Rear Admiral.....	1,129	198	244	23	162
Brig. Gen. }		250		30	222
Colonel—Captain.....	15,288	5,205	3,997	593	5,493
Lt. Colonel—Commander.....	36,073	12,434	8,117	1,408	14,114
Major—Lt. Commander.....	56,003	17,193	12,405	2,498	23,907
Captain—Lieutenant.....	104,486	30,032	22,356	4,034	48,064
1st Lieutenant—Lieutenant(JG).....	62,010	16,609	16,016	4,827	24,558
2nd Lieutenant—Ensign.....	47,671	19,834	13,107	2,253	12,477
Chief Warrant Officer W-4.....	3,285	1,153	894	65	1,173
Chief Warrant Officer W-3.....	4,708	2,702	513	147	1,346
Chief Warrant Officer W-2.....	5,664	4,631	172	848	13
Warrant Officer W-1.....	2,347	1,822		525	
ENLISTED ¹	2,304,929	854,929	587,183	172,640	690,177
Percent of Total.....	(86.8)	(88.2)	(87.4)	(90.7)	(83.7)
Pay Grade E-9.....	13,602	4,095	2,780	728	5,999
Pay Grade E-8.....	33,148	11,867	7,637	2,421	11,223
Pay Grade E-7.....	112,419	36,556	35,669	6,548	33,646
Pay Grade E-6.....	228,814	81,602	68,733	11,226	67,253
Pay Grade E-5.....	397,483	141,372	92,759	18,642	144,710
Pay Grade E-4.....	441,578	148,269	116,556	27,986	148,767
Pay Grade E-3.....	613,899	260,055	154,986	37,656	161,202
Pay Grade E-2.....	290,914	72,094	84,420	45,982	97,418
Pay Grade E-1.....	164,072	99,019	23,643	21,451	19,959
OFFICER CANDIDATES.....	11,638	2,017	6,399	315	2,907
Percent of Total.....	(0.4)	(0.2)	(1.0)	(0.2)	(0.3)

¹ Enlisted are shown by pay grade due to wide diversity of title. "Proficiency Pay" was being received by 200,812—pay grade E-9, 3,302; pay grade E-8, 7,597; pay grade E-7, 24,852; pay grade E-6, 51,502; pay grade E-5, 74,341; pay grade E-4, 34,943; and pay grade E-3, 4,275.

Table 14

ENLISTED PERSONNEL PROCUREMENT

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL					
Fiscal Year 1964...	756,528	361,449	169,207	52,058	173,814
Fiscal Year 1965...	701,685	294,090	169,810	45,954	191,831
<i>Inductions</i>					
Fiscal Year 1964...	150,723	150,688	-----	35	-----
Fiscal Year 1965...	102,555	102,497	-----	58	-----
<i>First Enlistments</i>					
Fiscal Year 1964...	345,143	116,202	95,040	39,065	94,836
Fiscal Year 1965...	318,290	101,901	94,301	34,310	87,697
<i>Immediate Reenlistments</i>					
Fiscal Year 1964...	206,892	82,074	37,153	11,035	76,630
Fiscal Year 1965...	226,117	76,224	37,686	9,520	102,687
<i>Other Reenlistments</i>					
Fiscal Year 1964...	22,163	11,360	7,748	936	2,119
Fiscal Year 1965...	20,775	12,327	6,329	879	1,240
<i>Reserves to Active Duty</i> ¹					
Fiscal Year 1964...	31,607	1,125	29,266	987	229
Fiscal Year 1965...	34,029	1,141	31,494	1,187	207

¹ Includes National Guard.

Table 15

REENLISTMENT RATES

(Percentage of Eligibles)

	Department of Defense	Army	Navy	Marine Corps	Air Force
REGULARS					
Fiscal Year 1964.....	50.4	52.0	41.5	30.3	61.4
Fiscal Year 1965.....	49.8	47.9	39.1	31.8	61.5
<i>First Term</i>					
Fiscal Year 1964.....	25.2	27.9	22.5	14.4	29.5
Fiscal Year 1965.....	24.0	25.7	21.4	15.2	27.3
<i>Career</i>					
Fiscal Year 1964.....	87.5	84.4	90.1	85.7	89.9
Fiscal Year 1965.....	87.0	84.1	86.7	84.0	89.2
INDUCTEES (Army)					
Fiscal Year 1964.....		3.6			
Fiscal Year 1965.....		8.4			
FIRST-TERM REGULARS BY OCCUPATIONAL GROUPS					
<i>Ground Combat</i>					
Fiscal Year 1964.....	28.5	34.7		14.0	
Fiscal Year 1965.....	29.5	35.1		14.4	
<i>Electronics</i>					
Fiscal Year 1964.....	23.6	21.2	22.6	12.3	31.1
Fiscal Year 1965.....	23.6	18.0	21.8	14.0	32.0
<i>Other Technical</i>					
Fiscal Year 1964.....	25.7	24.3	25.6	13.6	28.7
Fiscal Year 1965.....	22.5	20.1	21.8	23.2	27.2
<i>Administrative and Clerical</i>					
Fiscal Year 1964.....	27.1	24.9	26.2	17.2	34.5
Fiscal Year 1965.....	26.2	20.3	27.4	19.1	37.5
<i>Mechanics and Repairman</i>					
Fiscal Year 1964.....	23.6	24.7	21.1	16.0	28.1
Fiscal Year 1965.....	22.8	23.8	19.7	12.8	27.5
<i>Crafts</i>					
Fiscal Year 1964.....	24.2	23.5	22.0	17.1	28.1
Fiscal Year 1965.....	22.8	21.6	20.7	16.1	25.8
<i>Services</i>					
Fiscal Year 1964.....	29.6	31.6	54.4	13.9	26.4
Fiscal Year 1965.....	32.0	33.3	60.3	15.7	26.6
<i>Miscellaneous</i>					
Fiscal Year 1964.....	15.1	30.0	14.7	12.1	13.8
Fiscal Year 1965.....	10.5	22.9	13.5	20.2	47.9

Table 16

**DEPENDENTS OF MILITARY PERSONNEL
MARCH 31, 1965**

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL.....	3,973,929	1,297,441	791,368	195,608	1,689,512
Number Per Military Person.....	1.51	1.36	1.19	1.03	2.03
TYPE OF DEPENDENT					
Wives.....	1,318,414	435,878	285,253	70,979	526,304
Children.....	2,543,121	816,179	497,531	123,539	1,105,872
Parents.....	71,703	26,635	5,602	1,090	38,376
Other ¹	40,691	18,749	2,982	-----	18,960
LOCATION OF DEPENDENT					
Continental U.S.	3,344,372	1,027,828	709,816	181,872	1,424,856
Alaska.....	36,404	15,201	2,261	121	18,821
Hawaii.....	72,981	19,565	24,234	9,943	19,239
U.S. Territories.....	45,877	18,206	10,261	490	16,920
Foreign Countries....	474,295	216,641	44,796	3,182	209,676

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, 1964-----	29, 795	11, 730	7, 741	1, 448	8, 876
June 30, 1965-----	30, 610	12, 326	7, 862	1, 581	8, 841
OFFICERS					
June 30, 1964-----	10, 609	3, 772	2, 678	128	4, 031
June 30, 1965-----	10, 647	3, 806	2, 601	140	4, 100
<i>Regulars</i>					
June 30, 1964-----	3, 644	1, 290	1, 275	85	994
June 30, 1965-----	3, 448	1, 177	1, 189	95	987
<i>Reserves</i>					
June 30, 1964-----	6, 965	2, 482	1, 403	43	3, 037
June 30, 1965-----	7, 199	2, 629	1, 412	45	3, 113
ENLISTED					
June 30, 1964-----	18, 986	7, 958	4, 863	1, 320	4, 845
June 30, 1965-----	19, 653	8, 520	4, 951	1, 441	4, 741
OFFICER CANDIDATES					
June 30, 1964-----	200	-----	200	-----	-----
June 30, 1965-----	310	-----	310	-----	-----

Table 18

CIVILIAN PERSONNEL

	Department of Defense	Defense- wide activities	Army	Navy	Air Force
TOTAL					
June 30, 1964-----	1, 170, 066	37, 796	462, 818	347, 038	322, 414
June 30, 1965-----	1, 164, 226	42, 278	453, 427	346, 664	321, 857
DIRECT HIRE					
June 30, 1964-----	1, 029, 756	37, 796	369, 558	332, 678	289, 724
June 30, 1965-----	1, 033, 775	42, 278	366, 726	333, 271	291, 500
<i>Salaried</i>					
June 30, 1964-----	536, 119	28, 760	211, 802	139, 495	156, 062
June 30, 1965-----	547, 122	33, 310	213, 442	141, 473	158, 897
<i>Wage Board</i>					
June 30, 1964-----	493, 637	9, 036	157, 756	193, 183	133, 662
June 30, 1965-----	486, 653	8, 968	153, 284	191, 798	132, 603
INDIRECT HIRE					
June 30, 1964-----	140, 310	-----	93, 260	14, 360	32, 690
June 30, 1965-----	130, 451	-----	86, 701	13, 393	30, 357

Table 19

OSD-JCS PERSONNEL

	June 30, 1964			June 30, 1965		
	Total	Civilian	Military	Total	Civilian	Military
TOTAL-----	3, 842	2, 085	1, 757	4, 119	2, 297	1, 822
Intermittent Consultants-----	21	21	-----	38	38	-----
Summer Employees-----	55	55	-----	106	106	-----
TOTAL FULL-TIME PERSONNEL-----	3, 776	2, 009	1, 757	3, 975	2, 153	1, 822
OFFICE OF SECRETARY OF DEFENSE-----	2, 196	1, 612	584	2, 350	1, 729	1, 822
Secretary and Deputy Secretary-----	14	9	5	13	9	4
Defense Research and Engineering-----	517	349	168	527	361	166
Administration-----	237	154	83	304	192	112
Comptroller-----	278	267	11	345	329	16
Installations and Logistics-----	269	247	22	287	261	26
International Security Affairs-----	319	218	101	290	205	85
Manpower-----	197	138	59	196	136	60
Public Affairs-----	141	81	60	175	90	85
General Counsel-----	54	53	1	55	54	1
Special Staff Assistants-----	170	96	74	158	92	66
JOINT CHIEFS OF STAFF ORGANIZATION-----	1, 570	397	1, 173	1, 625	424	1, 201
Office of the Chairman-----	29	14	15	31	14	17
Joint Staff-----	678	230	448	671	231	440
Other Joint Chiefs of Staff Activities-----	863	153	710	923	179	744

Table 20

OTHER DEFENSE ACTIVITIES PERSONNEL

	June 30, 1964			June 30, 1965		
	Total	Civilian	Military	Total	Civilian	Military
TOTAL-----	44, 626	35, 711	8, 915	48, 786	39, 981	8, 805
Defense Atomic Support Agency-----	6, 935	1, 931	5, 004	6, 864	2, 079	4, 785
Defense Communications Agency-----	2, 226	883	1, 343	2, 365	987	1, 378
Defense Intelligence Agency-----	3, 593	2, 093	1, 500	3, 732	2, 186	1, 546
Defense Supply Agency-----	31, 141	30, 274	867	35, 101	34, 203	898
U.S. Court of Military Appeals-----	40	40	-----	40	40	-----
Armed Forces Information and Education-----	521	428	93	507	420	87
Interdepartmental Activities-----	41	8	33	43	9	34
International Military Activities-----	129	54	75	134	57	77

Table 21

RESERVE PERSONNEL

JUNE 30, 1965

	Total	Officers	Enlisted ¹
DEPARTMENT OF DEFENSE-----	2, 808, 250	809, 977	1, 998, 273
<i>Department of the Army</i> -----	1, 584, 832	348, 029	1, 236, 803
Army National Guard-----	387, 458	36, 983	350, 475
Army Reserve-----	1, 197, 374	311, 046	886, 328
<i>Department of the Navy</i> -----	696, 657	229, 736	466, 921
Naval Reserve-----	555, 732	203, 749	351, 983
Marine Corps Reserve-----	140, 925	25, 987	114, 938
<i>Department of the Air Force</i> -----	526, 761	232, 212	294, 549
Air National Guard-----	76, 709	10, 550	66, 159
Air Force Reserve-----	450, 052	221, 662	228, 390
ON ACTIVE DUTY ² -----	231, 845	169, 591	62, 254
<i>Department of the Army</i> -----	70, 285	69, 031	1, 254
Army National Guard-----	1, 477	1, 469	8
Army Reserve-----	68, 808	67, 562	1, 246
<i>Department of the Navy</i> -----	94, 974	34, 147	60, 827
Naval Reserve-----	88, 051	28, 563	59, 488
Marine Corps Reserve-----	6, 923	5, 584	1, 339
<i>Department of the Air Force</i> -----	66, 586	66, 413	173
Air National Guard-----	299	282	17
Air Force Reserve-----	66, 287	66, 131	156
NOT ON ACTIVE DUTY-----	2, 576, 405	640, 386	1, 936, 019
<i>Department of the Army</i> -----	1, 514, 547	278, 998	1, 235, 549
Army National Guard-----	385, 981	35, 514	350, 467
Army Reserve-----	1, 128, 566	243, 484	885, 082
<i>Department of the Navy</i> -----	601, 683	195, 589	406, 094
Naval Reserve-----	467, 681	175, 186	292, 495
Marine Corps Reserve-----	134, 002	20, 403	113, 599
<i>Department of the Air Force</i> -----	460, 175	165, 799	294, 376
Air National Guard-----	76, 410	10, 268	66, 142
Air Force Reserve-----	383, 765	155, 531	228, 234
COAST GUARD RESERVE-----	33, 607	6, 230	27, 377
On Active Duty-----	753	674	79
Not on Active Duty-----	32, 854	5, 556	27, 298

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.

Table 22

RESERVE PERSONNEL NOT ON ACTIVE DUTY

	Total	Ready Reserve	Standby Reserve	Retired Reserve
DEPARTMENT OF DEFENSE				
June 30, 1964.....	2, 550, 716	1, 799, 142	482, 476	269, 098
June 30, 1965.....	2, 576, 405	1, 801, 507	471, 873	303, 025
DEPARTMENT OF THE ARMY				
June 30, 1964.....	1, 520, 849	1, 111, 077	255, 592	154, 180
June 30, 1965.....	1, 514, 547	1, 104, 419	233, 916	176, 212
<i>Army National Guard</i>				
June 30, 1964.....	389, 067	389, 067	-----	-----
June 30, 1965.....	385, 981	385, 981	-----	-----
<i>Army Reserve</i>				
June 30, 1964.....	1, 131, 782	722, 010	255, 592	154, 180
June 30, 1965.....	1, 128, 566	718, 438	233, 916	176, 212
DEPARTMENT OF THE NAVY				
June 30, 1964.....	607, 452	437, 392	96, 981	73, 079
June 30, 1965.....	601, 683	427, 170	96, 616	77, 897
<i>Naval Reserve</i>				
June 30, 1964.....	471, 451	333, 689	73, 390	64, 372
June 30, 1965.....	467, 681	326, 980	71, 941	68, 760
<i>Marine Corps Reserve</i>				
June 30, 1964.....	136, 001	103, 703	23, 591	8, 707
June 30, 1965.....	134, 002	100, 190	24, 675	9, 137
DEPARTMENT OF THE AIR FORCE				
June 30, 1964.....	422, 415	250, 673	129, 903	41, 839
June 30, 1965.....	460, 175	269, 918	141, 341	48, 916
<i>Air National Guard</i>				
June 30, 1964.....	73, 217	73, 217	-----	-----
June 30, 1965.....	76, 410	76, 410	-----	-----
<i>Air Force Reserve</i>				
June 30, 1964.....	349, 198	177, 456	129, 903	41, 839
June 30, 1965.....	383, 765	193, 508	141, 341	48, 916
COAST GUARD RESERVE				
June 30, 1964.....	30, 467	27, 129	2, 667	671
June 30, 1965.....	32, 854	29, 489	2, 624	741

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, 1964-----	1, 047, 542	953, 256	871, 384	81, 872	94, 286
June 30, 1965-----	1, 002, 493	932, 469	890, 581	41, 888	70, 026
DEPARTMENT OF THE ARMY					
June 30, 1964-----	727, 484	650, 070	578, 748	71, 322	77, 414
June 30, 1965-----	695, 263	640, 665	607, 861	32, 804	54, 598
<i>Army National Guard</i>					
June 30, 1964-----	381, 546	381, 546	335, 678	45, 868	-----
June 30, 1965-----	378, 985	378, 985	353, 806	25, 179	-----
<i>Army Reserve</i>					
June 30, 1964-----	345, 938	268, 524	243, 070	25, 454	77, 414
June 30, 1965-----	316, 278	261, 680	254, 055	7, 625	54, 598
DEPARTMENT OF THE NAVY					
June 30, 1964-----	179, 572	169, 137	164, 604	4, 533	10, 435
June 30, 1965-----	180, 840	169, 106	164, 731	4, 375	11, 734
<i>Naval Reserve</i>					
June 30, 1964-----	131, 645	123, 277	122, 652	625	8, 368
June 30, 1965-----	132, 597	123, 488	122, 596	892	9, 109
<i>Marine Corps Reserve</i>					
June 30, 1964-----	47, 927	45, 860	41, 952	3, 908	2, 067
June 30, 1965-----	48, 243	45, 618	42, 135	3, 483	2, 625
DEPARTMENT OF THE AIR FORCE					
June 30, 1964-----	140, 486	134, 049	128, 032	6, 017	6, 437
June 30, 1965-----	126, 390	122, 698	117, 989	4, 709	3, 692
<i>Air National Guard</i>					
June 30, 1964-----	73, 217	73, 217	68, 963	4, 254	-----
June 30, 1965-----	76, 410	76, 410	73, 365	3, 045	-----
<i>Air Force Reserve</i>					
June 30, 1964-----	67, 269	60, 832	59, 069	1, 763	6, 437
June 30, 1965-----	49, 980	46, 288	44, 624	1, 664	3, 692
COAST GUARD RESERVE					
June 30, 1964-----	20, 269	17, 973	16, 620	1, 353	2, 296
June 30, 1965-----	21, 368	18, 378	16, 578	1, 800	2, 990

Table 24

RESERVE ACTIVE DUTY BASIC TRAINING PROGRAMS ¹

	Enlistments	Entered active duty	Completed active duty
DEPARTMENT OF DEFENSE			
Fiscal Year 1964.....	175, 496	145, 667	110, 209
Fiscal Year 1965.....	117, 865	122, 465	157, 674
DEPARTMENT OF THE ARMY			
Fiscal Year 1964.....	151, 614	122, 072	88, 061
Fiscal Year 1965.....	95, 540	99, 877	134, 551
<i>Army National Guard</i>			
Fiscal Year 1964.....	107, 511	78, 482	57, 516
Fiscal Year 1965.....	68, 189	74, 626	92, 851
<i>Army Reserve</i>			
Fiscal Year 1964.....	44, 103	43, 590	30, 545
Fiscal Year 1965.....	27, 351	25, 251	41, 700
DEPARTMENT OF THE NAVY			
Fiscal Year 1964.....	12, 339	11, 664	10, 170
Fiscal Year 1965.....	9, 980	11, 465	10, 943
<i>Naval Reserve</i>			
Fiscal Year 1964.....	1, 752	1, 257	1, 193
Fiscal Year 1965.....	1, 617	1, 665	1, 810
<i>Marine Corps Reserve</i>			
Fiscal Year 1964.....	10, 587	10, 407	8, 977
Fiscal Year 1965.....	8, 363	9, 800	9, 133
DEPARTMENT OF THE AIR FORCE			
Fiscal Year 1964.....	11, 543	11, 931	11, 978
Fiscal Year 1965.....	12, 345	11, 123	12, 180
<i>Air National Guard</i>			
Fiscal Year 1964.....	7, 955	8, 301	7, 585
Fiscal Year 1965.....	8, 618	7, 558	8, 528
<i>Air Reserve</i>			
Fiscal Year 1964.....	3, 588	3, 630	4, 393
Fiscal Year 1965.....	3, 727	3, 565	3, 652
COAST GUARD RESERVE			
Fiscal Year 1964.....	2, 374	2, 617	2, 313
Fiscal Year 1965.....	3, 024	2, 957	2, 332

¹ Four or more months active duty reserve training under provisions of Section 262 of the Armed Forces Reserve Act of 1952, as amended. Table includes enlisted personnel only; in addition, 30 Army Reserve officers entered active duty training and 31 completed it during fiscal year 1964, while 4 Army Reserve officers entered active duty training and 7 completed it during fiscal year 1965.

Table 25

MEDICAL CARE IN DEFENSE FACILITIES

	Department of Defense	Army	Navy	Air Force
HOSPITAL ADMISSIONS—ALL PERSONNEL				
Fiscal Year 1964---	1, 139, 929	455, 045	290, 202	394, 682
Fiscal Year 1965---	1, 103, 072	444, 900	281, 481	376, 691
<i>Active Duty Personnel</i>				
Fiscal Year 1964---	469, 147	180, 388	143, 811	144, 948
Fiscal Year 1965---	445, 558	175, 208	138, 413	131, 937
<i>Dependents and Others</i>				
Fiscal Year 1964---	670, 782	274, 657	146, 391	249, 734
Fiscal Year 1965---	657, 514	269, 692	143, 068	244, 754
OUTPATIENT VISITS—ALL PERSONNEL				
Fiscal Year 1964---	46, 288, 830	17, 299, 467	13, 182, 288	15, 807, 075
Fiscal Year 1965---	46, 720, 793	17, 593, 974	12, 774, 542	16, 352, 277
<i>Active Duty Personnel</i>				
Fiscal Year 1964---	20, 563, 195	7, 561, 933	7, 108, 639	5, 892, 623
Fiscal Year 1965---	20, 235, 614	7, 509, 273	6, 794, 042	5, 932, 299
<i>Dependents and Others</i>				
Fiscal Year 1964---	25, 693, 354	9, 694, 518	6, 084, 384	9, 914, 452
Fiscal Year 1965---	26, 485, 179	10, 084, 701	5, 980, 500	10, 419, 978

DEPENDENTS MEDICARE PROGRAM ¹

Table 26

	Department of Defense	Army	Navy	Air Force
PHYSICIANS' CLAIMS PAID				
<i>Number</i>				
Fiscal Year 1964---	383,766	97,529	157,862	128,375
Fiscal Year 1965---	347,743	87,117	148,329	112,297
<i>Amount (In Dollars)</i>				
Fiscal Year 1964---	29,719,969	7,602,202	12,145,364	9,972,403
Fiscal Year 1965---	26,927,659	6,773,494	11,450,702	8,703,463
CIVILIAN HOSPITAL CLAIMS PAID				
<i>Number</i>				
Fiscal Year 1964---	267,394	75,668	105,063	86,663
Fiscal Year 1965---	245,299	68,884	99,593	76,822
<i>Amount (In Dollars)</i>				
Fiscal Year 1964---	43,244,622	11,884,949	17,500,555	13,859,118
Fiscal Year 1965---	41,889,410	11,347,363	17,548,357	12,993,690

¹ As of Aug. 1, 1966. Due to time lag in billings, the above data are not complete.

Table 27

COST REDUCTION PROGRAM

(In Millions of Dollars)

	Savings realized or to be realized ¹			
	FY 1963	FY 1964	FY 1965	FY 1966
TOTAL PROGRAM.....	1,386	2,831	4,843	² 4,055
BUYING ONLY WHAT WE NEED..	860	1,521	2,555	1,973
Refining Requirements Calculations				
Major Items.....	90	487	1,060	747
Initial Provisioning.....	163	218	368	184
Secondary Items.....	481	643	626	799
Technical Manuals.....		10	9	8
Production Base.....	35	14	18	
Technical Data.....		2	6	2
Increased Use of Inventory				
Equipment and Supplies.....		57	169	75
Production Equipment.....	1		4	
Contractor Inventory.....	18	14	8	3
Value Engineering.....	72	76	204	83
Item Reduction.....			83	72
BUYING AT LOWEST SOUND PRICE..	237	553	1,150	1,015
Shift to Competitive Procurement....	237	448	641	414
Shift from Cost-Plus-Fixed-Fee.....		100	436	599
Breakout.....		5	6	2
Multi-year Procurement.....			67	
REDUCING OPERATING COSTS.....	289	757	1,119	1,067
Terminations.....	123	334	484	551
Consolidations and Standardizations				
DSA ³	31	42	59	57
Contract Administration.....				
Departmental.....		95	186	95
Increased Efficiency				
DCA and DC System.....	80	131	118	129
Traffic Management.....	24	7	35	35
Equipment Maintenance.....		65	117	108
Noncombat Vehicles.....	2	18	24	21
Reduced Contract Technicians.....		20	26	27
Military Housing.....	6	13	16	14
Real Property.....	23	25	46	27
Packaging.....		7	8	3
MILITARY ASSISTANCE PROGRAM.....			19	

¹ Includes one-time savings not expected to recur in future years.² Amount reflected in budget for fiscal year 1966 as presented to the Congress in January 1965.³ Excludes DSA inventory drawdown of \$262 million in fiscal year 1963; \$161 million in fiscal year 1964; \$51 million in fiscal year 1965.

PROPERTY HOLDINGS

Table 28

(Acquisition Cost in Billions of Dollars)

	Department of Defense	Army	Navy	Air Force	Defense agencies
ALL TYPES					
June 30, 1964-----	173.5	37.1	67.4	66.0	3.0
June 30, 1965-----	176.2	36.4	69.7	67.3	2.8
PERSONAL PROPERTY					
June 30, 1964-----	134.9	26.0	56.7	49.1	3.0
June 30, 1965-----	137.2	25.4	59.0	50.1	2.8
<i>Materiel in Use</i>					
June 30, 1964-----	81.3	9.2	¹ 38.3	33.8	(²)
June 30, 1965-----	85.0	9.4	¹ 41.2	34.3	(²)
<i>In Supply System</i>					
June 30, 1964-----	38.9	11.9	13.4	11.2	2.3
June 30, 1965-----	37.1	11.2	12.8	11.0	2.1
<i>Plant Equipment</i>					
June 30, 1964-----	9.8	3.8	3.2	2.2	0.6
June 30, 1965-----	9.8	3.9	3.3	2.0	0.6
<i>Government-Provided Material</i>					
June 30, 1964-----	1.7	0.5	0.1	1.1	(²)
June 30, 1965-----	1.7	0.3	0.1	1.3	(²)
<i>Industrial Funds</i>					
June 30, 1964-----	0.2	(²)	0.2	(²)	(²)
June 30, 1965-----	0.2	(²)	0.2	(²)	(²)
<i>Excess and Surplus</i>					
June 30, 1964-----	3.0	0.6	1.5	0.8	0.1
June 30, 1965-----	3.5	0.5	1.5	1.4	0.1
REAL PROPERTY					
June 30, 1964-----	36.7	10.8	10.1	15.8	-----
June 30, 1965-----	37.6	10.7	10.2	16.6	-----
CONSTRUCTION IN PROGRESS					
June 30, 1964-----	1.8	0.3	0.5	1.0	-----
June 30, 1965-----	1.4	0.3	0.5	0.6	-----

¹ Includes \$2.2 billion for June 30, 1964, and \$1.9 billion for June 30, 1965, of expenditures for work in place on vessels under construction or conversion.

² Less than \$50 million.

Table 29

CONTRACT AWARDS BY PROGRAM

(Net in Millions of Dollars)

	Fiscal year 1964		Fiscal year 1965	
	Amount	Percent	Amount	Percent
TOTAL.....	28, 796	100. 0	27, 997	100. 0
MAJOR HARD GOODS.....	18, 408	63. 9	17, 278	61. 7
Aircraft.....	6, 223	21. 6	5, 964	21. 3
Missile and Space Systems.....	5, 871	20. 4	4, 479	16. 0
Ships.....	1, 541	5. 4	1, 810	6. 5
Tank-Automotive.....	787	2. 7	865	3. 1
Weapons.....	214	0. 7	304	1. 0
Ammunition.....	676	2. 3	779	2. 8
Electronics-Communications.....	3, 996	10. 8	3, 077	11. 0
SERVICES.....	2, 523	8. 8	2, 410	8. 6
ALL OTHER.....	7, 865	27. 3	8, 309	29. 7
Subsistence.....	640	2. 2	702	2. 5
Textiles and Clothing.....	275	1. 0	372	1. 3
Fuels and Lubricants.....	1, 147	4. 0	1, 194	4. 3
Miscellaneous Hard Goods.....	1, 109	3. 8	1, 189	4. 3
Construction.....	1, 563	5. 4	1, 541	5. 5
Actions of less than \$10,000.....	3, 131	10. 9	3, 311	11. 8

Table 30

CONTRACT AWARDS BY TYPE OF CONTRACTOR

(Net in Millions of Dollars)

	Department of Defense	Army	Navy	Air Force	Defense agencies
TOTAL					
Fiscal Year 1964.....	28,796	6,240	8,995	10,546	3,015
Fiscal Year 1965.....	27,997	6,076	8,969	9,659	3,294
INTRAGOVERNMENTAL					
Fiscal Year 1964.....	562	151	166	211	33
Fiscal Year 1965.....	612	112	278	199	23
WORK OUTSIDE U.S.					
Fiscal Year 1964.....	1,326	567	206	229	324
Fiscal Year 1965.....	1,366	571	179	271	344
EDUCATIONAL AND NON-PROFIT INSTITUTIONS					
Fiscal Year 1964.....	688	105	175	341	67
Fiscal Year 1965.....	738	123	179	393	44
BUSINESS FIRMS FOR WORK IN U.S.¹					
Fiscal Year 1964.....	26,221	5,418	8,447	9,766	2,591
Fiscal Year 1965.....	25,281	5,270	8,333	8,795	2,883
<i>Small Business Firms</i>					
Fiscal Year 1964.....	4,519	1,272	1,287	939	1,021
Fiscal Year 1965.....	4,943	1,334	1,375	1,055	1,179
<i>Small Business Percentage</i>					
Fiscal Year 1964.....	17.2	23.5	15.2	9.6	39.4
Fiscal Year 1965.....	19.6	25.3	16.5	12.0	40.9

¹ For military functions only. Data for military and civil functions combined is as follows:

	Fiscal year 1964	Fiscal year 1965
Awards to Business Firms for Work in United States.....	\$26,920	\$26,113
Small Business Firms.....	\$4,842	\$5,305
Small Business Percentage.....	18.0%	20.3%

Table 31

CONTRACT AWARDS BY PRICING PROVISIONS

(Net in Millions of Dollars)

	Fiscal year 1964		Fiscal year 1965	
	Amount	Percent	Amount	Percent
TOTAL.....	28,796	-----	27,997	-----
Intragovernmental Orders ¹	562	-----	612	-----
Actions less than \$10,000 ²	2,907	-----	3,054	-----
TOTAL MINUS SUBTOTALS.....	25,328	100.0	24,331	100.0
FIXED PRICE.....	18,029	71.2	18,619	76.5
Firm.....	11,730	46.3	12,857	52.8
Redeterminable.....	612	2.4	536	2.2
Incentive.....	4,685	18.5	4,040	16.6
Escalation.....	1,001	4.0	1,187	4.9
COST REIMBURSEMENT.....	7,299	28.8	5,711	23.5
No Fee.....	582	2.3	578	2.4
Fixed Fee.....	3,035	12.0	2,289	9.4
Incentive Fee.....	3,580	14.1	2,721	11.2
Time and Materials.....	70	0.3	86	0.3
Labor-Hour.....	31	0.1	38	0.2

¹ Pricing provisions not applicable.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 1964		Fiscal year 1965	
	Amount	Percent	Amount	Percent
TOTAL.....	28,796	-----	27,977	-----
Intragovernmental Orders ¹	562	-----	612	-----
TOTAL MINUS SUBTOTAL.....	28,235	100.0	27,385	100.0
PRICE COMPETITION.....	11,031	39.1	11,884	43.4
Formally Advertised.....	4,072	14.4	4,817	17.6
Restricted to Small Business and Labor Surplus Areas.....	1,539	5.5	1,622	5.9
Open Market Purchase of \$2,500 or less within U.S. ²	1,338	4.7	1,392	5.1
Other Price Competition ³	4,084	14.5	4,051	14.8
OTHER THAN PRICE COMPETI- TION.....	17,203	60.9	15,501	56.6
Design or Technical Competition.....	1,681	6.0	1,447	5.3
Follow-on Contracts after Price or Design Competition.....	8,876	31.4	7,054	25.8
One-Source Solicitation.....	6,646	23.4	7,000	25.5

¹ Competitive status not applicable.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 1964		Fiscal year 1965	
	Millions of dollars	Percent of U.S.	Millions of dollars	Percent of U.S.
NEW ENGLAND.....	2,307	9.5	2,599	11.2
Maine.....	32	0.1	69	0.3
New Hampshire.....	65	0.3	53	0.2
Vermont.....	14	0.1	32	0.1
Massachusetts.....	1,032	4.2	1,179	5.1
Rhode Island.....	38	0.2	86	0.4
Connecticut.....	1,126	4.6	1,180	5.1
MIDDLE ATLANTIC.....	4,297	17.6	4,039	17.3
New York.....	2,496	10.2	2,230	9.6
New Jersey.....	918	3.8	820	3.5
Pennsylvania.....	883	3.6	989	4.2
SOUTH ATLANTIC.....	3,207	13.1	3,095	13.3
Delaware.....	30	0.1	38	0.2
Maryland.....	548	2.3	584	2.5
District of Columbia.....	223	0.9	248	1.0
Virginia.....	691	2.8	469	2.0
West Virginia.....	87	0.4	90	0.4
North Carolina.....	273	1.1	288	1.2
South Carolina.....	52	0.2	82	0.4
Georgia.....	520	2.1	663	2.8
Florida.....	783	3.2	633	2.7
SOUTH CENTRAL.....	2,209	9.0	2,419	10.4
Kentucky.....	40	0.2	43	0.2
Tennessee.....	194	0.8	197	0.8
Alabama.....	191	0.8	165	0.7
Mississippi.....	156	0.6	152	0.7
Arkansas.....	30	0.1	39	0.2
Louisiana.....	181	0.7	256	1.1
Oklahoma.....	123	0.5	120	0.5
Texas.....	1,294	5.3	1,447	6.2

See footnotes at end of table.

Table 33—Continued
CONTRACT AWARDS BY REGION AND STATE ¹—Continued

	Fiscal year 1964		Fiscal year 1965	
	Millions of dollars	Percent of U.S.	Millions of dollars	Percent of U.S.
EAST NORTH CENTRAL.....	2, 764	11.3	2, 626	11.3
Ohio.....	1, 029	4.2	863	3.7
Indiana.....	538	2.2	605	2.6
Illinois.....	429	1.8	422	1.8
Michigan.....	591	2.4	533	2.3
Wisconsin.....	177	0.7	203	0.9
WEST NORTH CENTRAL.....	2, 209	9.0	1, 796	7.7
Minnesota.....	218	0.9	259	1.1
Iowa.....	104	0.4	134	0.6
Missouri.....	1, 349	5.5	1, 061	4.6
North Dakota.....	192	0.8	49	0.2
South Dakota.....	23	0.1	21	0.1
Nebraska.....	34	0.1	43	0.2
Kansas.....	289	1.2	229	1.0
MOUNTAIN.....	1, 055	4.3	809	3.5
Montana.....	16	0.1	69	0.3
Idaho.....	8	(²)	12	0.1
Wyoming.....	49	0.2	8	(²)
Colorado.....	390	1.6	249	1.1
New Mexico.....	72	0.3	84	0.4
Arizona.....	174	0.7	177	0.8
Utah.....	340	1.4	191	0.8
Nevada.....	6	(²)	19	0.1
PACIFIC.....	6, 215	25.6	5, 739	24.7
Washington.....	1, 086	4.5	545	2.3
Oregon.....	29	0.1	40	0.2
California.....	5, 100	21.0	5, 154	22.1
ALASKA and HAWAII.....	154	0.6	146	0.6
Alaska.....	102	0.4	74	0.3
Hawaii.....	52	0.2	72	0.3

¹ Includes supply, RDT&E, services, construction, and facility prime contract awards of \$10,000 or more within the United States, totaling \$24,417 million during fiscal year 1964 and \$23,268 million during fiscal year 1965.

² Less than 0.05 percent.

Table 34

DEFENSE-WIDE SUPPLY

	Line items centrally managed	Net inventory investment (\$ millions)	Annual sales (\$ millions)	Annual obligations (\$ millions)
DSA SUPPLY CENTERS				
June 30, 1964-----	1, 328, 000	2, 231. 9	1, 738. 2	1, 577. 8
June 30, 1965-----	1, 368, 900	1, 976. 9	¹ 1, 876. 3	1, 825. 8
<i>Clothing & Textiles</i>				
June 30, 1964-----	22, 700	842. 3	376. 9	246. 7
June 30, 1965-----	21, 900	735. 8	363. 1	316. 8
<i>Construction Supplies</i>				
June 30, 1964-----	263, 300	223. 6	104. 8	115. 7
June 30, 1965-----	272, 800	201. 1	125. 8	120. 1
<i>Electronic Supplies</i>				
June 30, 1964-----	507, 700	419. 3	112. 8	112. 2
June 30, 1965-----	555, 600	406. 5	152. 8	127. 0
<i>Fuel</i> ²				
June 30, 1964-----	1, 600	27. 7	34. 1	³ 34. 8
June 30, 1965-----				(³)
<i>General Supplies</i>				
June 30, 1964-----	87, 300	126. 9	105. 4	100. 3
June 30, 1965 ² -----	95, 900	160. 4	161. 2	169. 6
<i>Industrial Supplies</i>				
June 30, 1964-----	433, 600	301. 2	102. 8	84. 5
June 30, 1965-----	410, 700	216. 8	109. 9	94. 7
<i>Medical Supplies</i>				
June 30, 1964-----	10, 900	178. 3	97. 3	82. 9
June 30, 1965-----	11, 200	164. 3	106. 0	119. 6
<i>Subsistence</i>				
June 30, 1964-----	900	112. 6	804. 1	800. 7
June 30, 1965-----	800	92. 0	857. 0	878. 0

¹ Includes \$0.5 million other miscellaneous income.

² The Defense Fuel Supply Center (DFSC) differs from other centers in that the military Services retain ownership of their wholesale bulk fuel (petroleum) stocks. DFSC procures all types of petroleum products, but transferred its residual inventory control functions (for packaged products) to the Defense General Supply Center (DGSC) in March 1965. DGSC totals for fiscal year 1965 include \$21 million of packaged petroleum.

³ Procurement awards by DFSC for petroleum totaled \$1,119 million in fiscal year 1964, and \$1,167 million in fiscal year 1965.

Table 35

DEFENSE-WIDE TRANSPORTATION SERVICES

	Military Air Transport Service	Military Sea Transportation Service	Military Traffic Management and Terminal Service
PASSENGERS CARRIED			
Fiscal Year 1964.....	1, 311, 000	435, 000	4, 521, 000
Fiscal Year 1965.....	1, 355, 000	413, 000	4, 461, 000
CARGO CARRIED (In Short Tons)			
Fiscal Year 1964.....	197, 000	26, 236, 000	23, 114, 000
Fiscal Year 1965.....	253, 000	26, 809, 000	22, 587, 000
<i>Dry Cargo Tonnage</i>			
Fiscal Year 1964.....	197, 000	¹ 7, 066, 000	8, 950, 000
Fiscal Year 1965.....	253, 000	¹ 6, 955, 000	8, 962, 000
<i>Petroleum Tonnage</i>			
Fiscal Year 1964.....		² 19,170,000	14, 164, 000
Fiscal Year 1965.....		² 19,854,000	13, 625, 000
EXPENSES (In Millions of Dollars)			
Fiscal Year 1964.....	385	455	³ 592
Fiscal Year 1965.....	447	473	³ 619
<i>Payments for Commercial Services</i>			
Fiscal Year 1964.....	192	345	584
Fiscal Year 1965.....	231	355	609

¹ Reported by MSTs in measurement tons—13,426,000 in 1964 and 13,214,000 in 1965—and converted to short tons on an estimated ratio of 1.9 to 1.

² Reported by MSTs in long tons—17,116,000 in 1964 and 17,727,000 in 1965—and converted to short tons on a ratio of 1 to 1.12.

³ Includes payments made by the military Services to commercial carriers for transportation and the administrative costs of the traffic management agency. Excludes cargo tonnages and expenses for through-billed household goods moved to and from oversea locations—133,300 tons at a cost of \$90 million during fiscal year 1964 and 134,700 tons at a cost of \$90 million during fiscal year 1965.

Table 36

FEDERAL CATALOG SYSTEM

	Fiscal year 1964		Fiscal year 1965	
FEDERAL CATALOG				
<i>Number of Items at Beginning of Year</i>	4, 222, 524		4, 290, 563	
Number of Items Added.....	481, 556		377, 269	
Number of Items Deleted.....	413, 517		464, 624	
Net Change.....	68, 039		—87, 355	
<i>Number of Items at End of Year</i>	4, 290, 563		4, 203, 208	
Department of Defense Items...	3, 950, 651		3, 838, 767	
Other Agency Items.....	339, 912		364, 441	

	June 30, 1964		June 30, 1965	
	Number	Percent	Number	Percent
INTER-SERVICE USE				
<i>Army</i>				
Items in Use.....	1, 105, 439	-----	1, 122, 632	-----
Items Also Used by Other Services.....	345, 855	31. 3	377, 014	33. 6
<i>Navy</i>				
Items in Use.....	1, 306, 287	-----	1, 366, 280	-----
Items Also Used by Other Services.....	278, 872	21. 3	333, 409	24. 4
<i>Marine Corps</i>				
Items in Use.....	260, 180	-----	263, 104	-----
Items Also Used by Other Services.....	168, 867	64. 9	176, 146	66. 9
<i>Air Force</i>				
Items in Use.....	1, 713, 246	-----	1, 599, 866	-----
Items Also Used by Other Services.....	338, 970	19. 8	372, 389	23. 3

Table 37

MAJOR STORAGE FACILITIES

(In Millions of Square Feet)

	Fiscal year 1964	Fiscal year 1965
COVERED SPACE ¹		
Beginning of Fiscal Year.....	338.3	324.7
Net Reduction.....	-13.6	-6.4
End of Fiscal Year.....	324.7	318.3
OCCUPIED OPEN SPACE ²		
Beginning of Fiscal Year.....	95.9	92.9
Net Reduction.....	-3.0	-6.3
End of Fiscal Year.....	92.9	86.6
CROSS-SERVICING OF COVERED SPACE ¹	24.0	24.1
Among Defense Agencies.....	17.2	17.5
National Stockpile.....	6.1	5.9
Other Government Agencies.....	0.7	0.7
CROSS-SERVICING OF OCCUPIED OPEN SPACE ²	23.5	22.6
Among Defense Agencies.....	5.1	4.9
National Stockpile.....	17.7	17.0
Other Government Agencies.....	0.7	0.7

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.

Table 38

MATERIEL REUTILIZATION AND DISPOSAL

(In Millions of Dollars)

	Fiscal year 1964	Fiscal year 1965
GROSS REUTILIZATION AND DISPOSALS.....	6, 894	6, 443
REUTILIZATION WITHIN DEPARTMENT OF DEFENSE.....	1, 325	1, 460
Wholesale Inter-Service Supply Support.....	396	851
Intra-Service ¹	769	252
Inter-Service.....	160	357
OTHER REUTILIZATION AND DISPOSALS.....	5, 569	4, 983
Military Assistance Program.....	4	162
Reutilization by Other Federal Agencies.....	190	233
Donations.....	273	282
Sold as Usable Property.....	980	975
Designated for Sale as Scrap.....	3, 818	2, 983
Other Dispositions.....	187	219
Destroyed or Abandoned.....	117	129
CASH PROCEEDS REALIZED.....	111	121

¹ Excludes intra-Service transfers of property by property officers.

Table 39

REAL PROPERTY HOLDINGS

	Department of Defense	Army	Navy	Air Force
ACQUISITION COST (In Millions of Dollars)				
June 30, 1964.....	36,735	10,812	10,093	15,829
June 30, 1965.....	37,557	10,747	10,217	16,592
<i>United States</i>				
June 30, 1964.....	31,287	9,750	8,582	12,955
June 30, 1965.....	32,042	9,653	8,675	13,714
<i>U.S. Possessions</i>				
June 30, 1964.....	1,125	138	652	335
June 30, 1965.....	1,154	151	664	339
<i>Foreign Countries</i>				
June 30, 1964.....	4,322	923	860	2,539
June 30, 1965.....	4,361	944	878	2,540
ACREAGE (In Millions of Acres)				
June 30, 1964.....	31.8	15.0	5.1	11.7
June 30, 1965.....	30.9	15.0	4.2	11.6
By Location				
<i>United States</i>				
June 30, 1964.....	28.2	14.0	4.6	9.6
June 30, 1965.....	27.2	14.0	3.7	9.5
<i>U.S. Possessions</i>				
June 30, 1964.....	0.2	0.1	0.1	(¹)
June 30, 1965.....	0.2	0.1	0.1	(¹)
<i>Foreign Countries</i>				
June 30, 1964.....	3.4	0.9	0.4	2.1
June 30, 1965.....	3.4	0.9	0.4	2.1
By Type of Control				
<i>Owned Outright</i>				
June 30, 1964.....	7.2	4.1	1.4	1.7
June 30, 1965.....	7.2	4.1	1.4	1.7
<i>Public Domain and Public Lands</i>				
June 30, 1964.....	16.7	7.4	2.2	7.1
June 30, 1965.....	16.6	7.4	2.2	7.1
<i>Leased, Easements, etc.</i>				
June 30, 1964.....	4.5	2.6	1.1	0.8
June 30, 1965.....	3.7	2.6	0.2	0.8
<i>Foreign Rights</i>				
June 30, 1964.....	3.3	0.9	0.4	2.0
June 30, 1965.....	3.3	0.9	0.4	2.0

¹ Air Force controlled only 40,589 acres in U.S. possessions on June 30, 1964, and 39,895 acres on June 30, 1965.

Table 40

FAMILY HOUSING

	June 30, 1964	June 30, 1965
TOTAL UNITS—MILITARY OWNED AND CONTROLLED-----	378, 926	377, 159
<i>Adequate</i> -----	340, 483	341, 194
Capehart-----	114, 630	114, 749
Wherry (Acquired)-----	74, 190	74, 400
Leased-----	4, 567	6, 044
Surplus Commodity ¹ -----	8, 890	6, 783
Other Public Quarters-----	129, 268	132, 471
Wherry (Privately Owned)-----	5, 124	4, 010
Rental Guaranty-----	3, 814	2, 737
<i>Inadequate</i> -----	38, 443	35, 965
UNITS UNDER CONSTRUCTION-----	10, 129	12, 190
Appropriated Funds-----	9, 557	11, 842
Capehart-----	164	-----
Surplus Commodity ¹ -----	408	348

¹ Housing constructed overseas primarily with funds derived from sale of surplus agricultural commodities.

Table 41

MILITARY ASSISTANCE, 1950-65

(In Millions of Dollars)

	Appropriations	Transfers, reimbursements, and rescissions	Available for obligation	Obligations and reservations	Expenditures
TOTAL, 1950-65 ¹	35, 032. 8	-1, 192. 0	33, 840. 7	33, 818. 6	31, 865. 4
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
1964-----	1, 000. 0	167. 3	1, 167. 3	1, 188. 6	1, 533. 4
1965----- ²	1, 130. 0	62. 5	1, 192. 5	1, 174. 7	1, 272. 6

¹ Includes "Common Use Item" appropriation administered by the Agency for International Development.

² Includes \$75.0 million Section 510 "Special Authority."

Table 42

MILITARY ASSISTANCE DELIVERIES

(In Millions of Dollars)

	Fiscal year 1964	Fiscal year 1965	Fiscal year 1960-65
DELIVERIES UNDER GRANT AID ¹ ---	1, 414. 7	1, 239. 4	30, 627. 6
EUROPE-----	174. 9	287. 7	13, 694. 3
Belgium-----	39. 6	4. 8	1, 234. 0
Denmark-----	12. 1	48. 1	590. 5
France-----	5. 2	4. 9	4, 154. 6
Germany-----	0. 3	0. 2	900. 9
Italy-----	40. 0	94. 2	2, 281. 6
Luxembourg-----	(²)	(²)	8. 2
Netherlands-----	10. 7	49. 7	1, 214. 0
Norway-----	41. 1	35. 3	776. 2
Portugal-----	5. 5	9. 5	309. 0
Spain-----	20. 1	40. 6	496. 9
United Kingdom-----	0. 3	0. 4	1, 034. 6
Yugoslavia-----			693. 9
NEAR EAST-----	222. 0	278. 1	4, 178. 9
Afghanistan-----	0. 5	0. 1	2. 9
Greece-----	83. 2	104. 0	1, 225. 2
Iran-----	27. 3	49. 9	629. 2
Iraq-----	0. 1	0. 2	46. 4
Jordan-----	8. 1	4. 6	33. 3
Lebanon-----	0. 1	0. 1	8. 6
Saudi Arabia-----	1. 1	0. 8	30. 7
Syria-----	(²)	(²)	(²)
Turkey-----	101. 6	118. 4	2, 202. 7
Yemen-----		(²)	(²)
AFRICA-----	27. 9	17. 4	138. 0
Cameroon-----			0. 2
Congo (Kinshasa)-----	5. 0	2. 3	7. 4
Dahomey-----			0. 1
Ethiopia-----	10. 3	8. 3	80. 9
Ghana-----	(²)		(²)
Guinea-----		(²)	(²)
Ivory Coast-----			0. 1
Liberia-----	0. 7	0. 5	3. 1
Libya-----	1. 5	2. 2	8. 1
Mali-----	0. 2	0. 5	1. 6
Morocco-----	6. 0	2. 3	18. 4
Niger-----			0. 1
Nigeria-----	0. 2	0. 3	0. 5
Senegal-----	0. 5	0. 1	2. 3
Sudan-----	(²)	(²)	0. 1
Tunisia-----	3. 5	0. 9	15. 1
Upper Volta-----		(²)	0. 1

See footnotes at end of table.

MILITARY ASSISTANCE DELIVERIES—Continued

Table 42—Continued

(In Millions of Dollars)

	Fiscal year 1964	Fiscal year 1965	Fiscal year 1950-65
FAR EAST.....	292.6	308.1	6,140.7
Cambodia.....	3.6	0.3	87.1
Republic of China.....	128.1	84.8	2,164.2
Indochina.....			709.6
Indonesia.....	7.2	2.1	68.0
Japan.....	18.6	29.6	820.1
Korea.....	124.4	173.1	1,995.0
Malaysia.....		(²)	(²)
Philippines.....	10.7	18.2	296.7
LATIN AMERICA.....	51.4	52.8	486.3
Argentina.....	1.5	6.0	10.3
Bolivia.....	3.2	1.9	10.6
Brazil.....	9.1	11.4	171.1
Chile.....	7.8	6.3	66.1
Colombia.....	6.2	5.7	51.3
Costa Rica.....	0.5	0.2	1.5
Cuba.....			10.6
Dominican Republic.....	1.5	1.2	10.9
Ecuador.....	2.6	2.3	27.1
El Salvador.....	0.9	0.8	3.4
Guatemala.....	1.4	1.5	8.1
Haiti.....			3.2
Honduras.....	0.4	0.7	3.7
Jamaica.....	0.2	0.4	0.6
Mexico.....	0.3	0.2	1.1
Nicaragua.....	1.2	1.2	6.9
Panama.....	0.1	0.2	1.4
Paraguay.....	1.2	0.9	3.0
Peru.....	10.0	8.2	59.3
Uruguay.....	1.8	2.4	31.7
Venezuela.....	1.5	1.3	4.4
WORLDWIDE AND REGIONAL PRO- GRAMS ³	645.7	295.3	5,989.3

¹ Includes only grant-aid deliveries chargeable to Military Assistance Program appropriations. Additional military materiel and services valued at \$71.0 million were delivered during fiscal year 1965 under the credit assistance provisions of the Foreign Assistance Act, for a total of \$383.1 million delivered in credit assistance since 1950. Furthermore, military weapons, equipment, and supplies excess to U.S. needs and valued at acquisition costs of \$200.8 million were delivered to grant-aid countries during fiscal year 1965 without charge to MAP appropriations except for rehabilitation and transportation costs, bringing total deliveries of excess stocks to \$2,794.3 million since 1950.

² Less than \$50,000.

³ Includes totals for countries which must remain classified because of intergovernmental agreements or because of their sensitive nature.

Table 43

MILITARY ASSISTANCE OBLIGATIONS AND EXPENDITURES

(In Millions of Dollars)

	Obligations/Reservations		Expenditures	
	FY 1965	FY 1950-65	FY 1965	FY 1950-65
TOTAL ¹	1, 174. 7	33, 818. 6	1, 272. 6	31, 865. 4
BY BUDGET ACTIVITY				
GRANT AID PROGRAM.....	1, 249. 6	32, 339. 2	1, 201. 6	30, 576. 7
<i>Equipment and Supplies</i>				
Aircraft.....	218. 9	6, 595. 5	321. 1	6, 196. 3
Ships.....	49. 6	1, 859. 2	84. 7	1, 734. 2
Vehicles and Weapons.....	176. 4	7, 302. 9	280. 5	7, 025. 9
Ammunition.....	123. 0	4, 188. 1	112. 0	4, 104. 6
Missiles.....	11. 1	1, 359. 3	98. 9	1, 198. 8
Communications Equip- ment.....	82. 3	1, 983. 0	68. 7	1, 804. 4
Other Equipment and Supplies.....	180. 8	2, 492. 1	- 12. 5	2, 241. 9
<i>Services</i>				
Construction.....	47. 9	521. 0	39. 6	448. 0
Repair and Rehabilitation.....	17. 9	490. 7	8. 3	464. 0
Supply Operations.....	138. 3	2, 023. 9	132. 6	2, 001. 8
Training.....	74. 5	1, 061. 4	69. 9	1, 026. 5
Other Services				
Administrative Expenses.....	23. 3	353. 4	23. 3	346. 1
Infrastructure.....	48. 4	1, 005. 2	34. 2	889. 7
International Military Headquarters.....	15. 4	110. 7	12. 7	100. 9
Mutual Weapons De- velopment Program.....		272. 2	4. 7	268. 3
Weapons Production Projects.....	. 3	129. 2	- 107. 6	191. 8
Other Special Projects and Services.....	41. 5	591. 4	30. 5	533. 5
SALES PROGRAM.....	84. 9	570. 8	71. 0	383. 1
ECONOMIC PROGRAM.....	3. 0	908. 6		905. 6
RECOUPMENT OF PRIOR YEAR PROGRAMS.....	- 162. 7	NA	NA	NA
BY AGENCY				
Army.....	564. 3	16, 480. 4	581. 0	15, 727. 5
Navy.....	178. 8	4, 031. 5	196. 2	3, 608. 7
Air Force.....	355. 0	10, 639. 2	434. 9	10, 046. 7
OSD.....	71. 9	1, 497. 2	52. 8	1, 314. 6
Other Agencies.....	4. 8	1, 170. 3	7. 7	1, 167. 8

¹ Includes "Common Use Item" appropriation administered by the Agency for International Development.

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