Department of the Army Historical Summary

Fiscal Year 1972

CENTER OF MILITARY HISTORY
UNITED STATES ARMY
WASHINGTON, D.C., 1974

Department of the Army Historical Summary

Fiscal Year 1972

Compiled and Edited
by

William Gardner Bell

CENTER OF MILITARY HISTORY
UNITED STATES ARMY
WASHINGTON, D.C., 1974

Foreword

An annual report is one of the more traditional and useful ways of communicating the affairs of an organization, public or private, to interested agencies and individuals. Periodic compilations are especially binding upon government departments in the light of their obligation to inform the public. The United States Army, for example, has reported upon its expenditures, work, and accomplishments for the past century and a half.

The Department of the Army Historical Summary continues a series of periodic reports issued by Secretaries of War and the Army since Secretary John Calhoun's report to President James Monroe was published in 1822. In all editions it represents a primary source of reasonably comprehensive and quickly retrievable information about the Army.

Certain other official reports supplement or are supplemented by the Department of the Army Historical Summary. Readers seeking the broad service context that was formerly available in the Annual Report of the Department of Defense, where from 1949 to 1968 the Annual Report of the Secretary of the Army appeared, may wish to consult the annual posture statements issued by the Secretary of Defense and presented by the service secretaries before appropriate Congressional Committees. Those who wish to follow civil defense details reported under Army auspices since 1964 are referred to the annual report of the recently redesignated Defense Civil Preparedness Agency. Other reports published by various defense agencies furnish extended treatment of such subjects as supply and reserve forces.

Within the Army, several reports are published which supply depth on technical subjects that are covered in abridged form—for purposes of context—in the Department of the Army Historical Summary. The Annual Report of the Chief of Engineers on Civil Works Activities provides coverage of Army operations through the Corps of Engineers in such important areas as irrigation, flood control, navigation, hydropower, and resources management—all matters of broad environmental impact. The Annual Report of the Canal Zone Company and Canal Zone Government addresses in detail an Army function covered only briefly in the Historical Summary. And the Annual Report of The Surgeon General provides a wealth of detail not only on the health and medical care of the Army but also on a variety of activities in the field of medicine that are of interest to the general public.

The Army does not, of course, operate in a vacuum; the Department of the Army Historical Summary reflects the context of Army relationships with the other services, the upper levels of the Department of Defense, the United States Government, and the nation as a whole, fitting the Army into the institutional and societal structure of which it is a part.

Washington, D.C.
15 April 1974

JAMES L. COLLINS, JR.
Brigadier General, USA
Chief of Military History

Contents

Chart

Illustrations

Illustrations are from Department of Defense files.

DEPARTMENT OF THE ARMY HISTORICAL SUMMARY

Fiscal Year 1972

I. Introduction

Although military affairs rarely unfold with such precision that annual institutional segments have clearly defined limits and internal unity, a twelve-month period usually contains certain threads and directions that give it identity. Thus what transpired between July 1, 1971, and June 30, 1972, reveals that fiscal year 1972 was one of transition for the United States Army—a period when one set of controlling circumstances was receding and another was coming into play.

American withdrawal from the Vietnam War was the central factor in the process of change. There were major redeployments of troops and major redistributions of materiel from the war zone; the last divisional units departed Southeast Asia and the monumental task of disposing of equipment was completed during the year. Army battle casualties continued to decrease, with killed-in-action less than one-sixth and wounded only one-seventh of the previous year's totals.

The shift from wartime to peacetime operations paved the way for over-all Army demobilization. Strength fell not only to a point below what it had been at the start of the war a decade ago, but—through congressional limitation—below planned postwar levels. Major unit (divisional) composition also dipped below intended postwar goals. Draft calls, too, dropped sharply in this environment. As the year closed, draftees represented only 14 percent of over-all Army strength and only 16 percent of Army strength in Vietnam. On June 28, 1972, President Richard M. Nixon announced that no more draftees would be assigned to the combat theater unless they volunteered.

The operating year was well into the second quarter and the Army was moving to its authorized end strength on a planned schedule when the Congress reduced it by 50,000 man-years. To reach the lower level, a number of steps had to be taken that created widespread personnel turbulence. Early release actions, levies to keep Army forces in Europe at 95 percent strength, pressures to reach a zero draft status, and

measures to achieve an all-volunteer force, in combination with congressional delay in extending the draft, led to morale problems, skill imbalances, unit shortages, and decline in trained strength and general readiness. By May 1972 a difficult personnel situation had reached its nadir, although recovery would be hampered by the continuing requirements to move to a zero draft and an all-volunteer footing.

With regard to the all-volunteer force, as time advanced toward the zero draft target date of July 1, 1973, the Army moved along many lines to strengthen professionalism, enhance military life, and improve the personnel accession system. To advance professionalism, steps were taken to improve command stability, upgrade leadership instruction, and refine personnel management. To enhance Army life there were substantial increases in family and troop housing (both construction and modernization), improvements in health care for soldiers and dependents, and increases in military pay. A variety of new enlistment options and expansion and improvement of the recruiting service joined with pay increases to bring an upsurge in enlistments. It was a measure of the success of these actions that by year's end the Office of the Special Assistant for the Modern Volunteer Army could be disestablished, leaving the continuing details of building a volunteer Army to the operating elements of the departmental staff.

The Army was freed of two major functional responsibilities during fiscal year 1972. For twenty-seven years—the entire period of American tenure stemming from treaty arrangements after World War II—the Army administered the Ryukyu Islands on behalf of the United States government. On May 15, 1972, responsibility for governing the islands reverted to Japan. Under the new agreement, the United States retained its major Pacific base on Okinawa. In seven years of occupation and twenty of administration, the Army carried out relief and rehabilitation in the devastated archipelago and contributed immeasurably to the welfare and well-being of the Ryukyuan people and to their social and economic development. There were major advances in the fields of education, health, commerce, and government in the period of American stewardship.

In a second functional change, the Secretary of Defense established the Defense Civil Preparedness Agency to carry forward the civil defense role delegated to him by Executive Order 10952 and assigned in turn to the Secretary of the Army on March 31, 1964. Effective with the establishment of the new agency on May 5, 1972, the Office of Civil Defense, Department of the Army, was disestablished and its funds, personnel, manpower spaces, and other resources transferred to the Defense Civil Preparedness Agency. The Army will continue to provide military support to civil defense under the new arrangement.

Important international negotiations during fiscal year 1972 had a major impact upon national defense and the Army's Safeguard System antiballistic missile (ABM) program. On May 6, 1972, following the successful completion of the first phase of strategic arms limitation talks, the United States and the Soviet Union signed a Treaty on Limitations of Antiballistic Missiles. The agreement affected a planned twelve-site deployment under which work had proceeded at sites in Montana and North Dakota and was soon to be launched at two others in Missouri and Wyoming. Pending anticipated ratification, numerous immediate steps were taken to adjust the program to meet the terms of the agreement. A reoriented fiscal year 1973 Safeguard program was submitted to the Congress in June 1972 under which work would continue at the North Dakota ABM site, advanced preparations would proceed for an authorized National Command Authorities site at Washington, D.C., and the Montana site would be dismantled.

Another international agreement had broad implications for the Army in the fiscal year period, one that concerned personnel, doctrine, weapons, organization, facilities, and research in the chemical warfare field. On April 10, 1972, the United States signed a Convention on the Prohibition of the Deployment, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons under which the signatories agreed not to develop, produce, stockpile, acquire, or retain biological agents or toxins for warlike purposes, or the weapons and equipment to deliver them in armed conflict. The convention codified

HONORABLE STANLEY R. RESOR (*left*); HONORABLE ROBERT F. FROEHLKE (*right*).

for the international community and the participating states the unilateral actions previously taken by the United States and represented the first international agreement since World War II that provided for the elimination of an entire class of weapons from the arsenals of nations. As a result of this agreement, the Army's biological warfare facility at Pine Bluff Arsenal, Arkansas, became a new national center for research on the adverse effects of chemical substances in man's environment, while the biological research facility at Fort Detrick, Maryland, became a center for cancer research.

The opening and closing of the fiscal year were marked by changes in the Army's top leadership. On July 1, 1971, the Honorable Robert F. Froehlke took office as Secretary of the Army, replacing the Honorable Stanley R. Resor. On June 30, 1972, General William C. Westmoreland completed a four-year tour as Chief of Staff and retired from active service. General Creighton W. Abrams was nominated to succeed him.

GENERAL WILLIAM C. WESTMORELAND (*left*); GENERAL CREIGHTON W. ABRAMS (*right*).

These are some of the highlights of Army activity in fiscal year 1972. They are covered in greater detail, along with the broad outlines of Army operation in the period, in the following pages.

II. Operational Forces

Against a background of diminishing war in Vietnam, sustained withdrawal of American forces from the combat zone, substantially reduced draft calls, fiscal constraints, and returning peacetime conditions, Army demobilization continued through fiscal year 1972. Actual military strength declined from 1,124,000 to 811,000 during the year, while major units levelled off at 13 divisions, including 5 unmanned brigades, below the Army's postwar goal of 13 fully manned divisions. At year's end there were 6 fully manned divisions in the continental United States and Hawaii, 4⅓ in Europe, and 1 in Korea. Special mission brigades remained in Alaska, Panama, and Berlin.

The Pacific and the Far East

The waning war in Vietnam, the application of the Nixon Doctrine, detente with China and Russia, and the reversion of Okinawa to Japanese control all shaped the outlines of postwar relationships in the Pacific region and set the directions of operational planning for the Army and the other services. In line with the Nixon Doctrine, U.S. Army, Pacific, continued to maintain suitable forward deployments in Thailand, Vietnam, Korea, and Japan while undergoing over-all strength reductions and shifting emphasis to security assistance and adviser efforts that stressed the modernization and strengthening of allied armies.

Redeployment of American forces from Vietnam in accordance with presidential guidance continued at an accelerated rate during the year. Army troop reduction exceeded 166,000 and included the 23d Infantry Division, the 101st Airborne Division (Airmobile), the 3d Brigade of the 1st Cavalry Division (Airmobile), and the separate 196th Infantry Brigade, comprising the last division- and brigade-size elements in Vietnam. (For full details on Vietnam see Chapter 3.)

A major change in the Army's command and organizational structure in the Pacific occurred on May 15, 1972, in conjunction with the return of Okinawa to Japanese control after twenty-seven years of administration by the United States. Under the complex reorganization that accompanied reversion, Headquarters, IX U.S. Army Corps, was transferred from Okinawa and collocated with Headquarters, U.S. Army, Japan, to form Headquarters, U.S. Army, Japan/IX Corps, at

Camp Zama, Japan. On Okinawa, Headquarters, U.S. Army, Ryukyu Islands, and Headquarters, 2d Logistical Command, were inactivated and a U.S. Army Base Command, Okinawa, was established to command and support all Army units there and perform the theater logistic functions for United States and allied forces in the Pacific. Numerous other refinements were made to meet the dictates of operations in Southeast Asia and the gradual transition to peacetime conditions. Five subordinate commands were left within U.S. Army, Japan/IX Corps, under the reorganization: the U.S. Army Base Command, Okinawa; the U.S. Army Supply and Maintenance Activity, Sagami; the U.S. Army Garrison, Kanto Plain; the U.S. Army Transportation Activity, Japan; the U.S. Army Ammunition Depot Complex, Akizuki; the U.S. Army Medical Activity, Japan; and the U.S. Army Procurement Agency, Japan. Total Army strength in Japan and Okinawa was reduced slightly as a result of this reorganization.

A reduction of U.S. forces in Korea during 1971 resulted in the formation of the first combined corps in U.S. Army history. The I U.S./ROK Corps (Group) Headquarters was activated on July 1, 1971, at Uijonbu to bridge the gap created by the departure of an American division and other elements. The combined headquarters is commanded by a U.S. Army lieutenant general, has a major general of the Republic of Korea Army as a deputy commander, and has a combined American-Korean staff. It has proved to be extremely effective in providing command and control following the employment of additional Korean troops along the demilitarized zone. The headquarters operates like that of a standard American field army and is responsible for a key section of the demilitarized zone.

The United States is engaged in a five-year program, extending through fiscal year 1975, to upgrade the Republic of Korea's armed forces. An important part of the program involves the transfer of excess military equipment to those forces. By June 30, 1972, about $95 million in equipment had been transferred from withdrawing U.S. to Korean forces, including aircraft, tanks, wheeled vehicles, and all of the standard equipment of eight U.S. maneuver battalions whose missions had been assumed by the Korean Army. Excess military equipment in Vietnam is also being offered to the Korean armed forces to meet known materiel requirements. In addition, the Republic of Korea has contracted with Colt Industries, Inc., for the production of M16 rifles, and other coproduction programs for wheeled vehicles and communications equipment are being encouraged.

Congressional cuts in the fiscal year 1972 military grant assistance portion of the foreign aid program constrained modernization plans and resulted in an annual program of about $150 million for Korea,

some 40 percent less than had been requested. Officials in both the Defense and State Departments made strenuous efforts to obtain congressional support for a recommended $235 million in grant aid for Korea for fiscal year 1973. Secretary of Defense Melvin Laird, in February 1972, informed the House Appropriations Committee that "We are going forward with a five year modernization program. Progress depends on congressional appropriations, year by year, and the action by Congress on our military assistance request last year was a great setback to this program."

Although South Korean ground forces are adequate to meet a ground attack from the north, North Korea has air superiority, and would retain numerical superiority even after the completion of the five-year modernization program, a significant threat in view of the fact that Seoul—the capital and center of military, economic, and social life of the republic—is only thirty-five miles south of the demilitarized zone. American and South Korean efforts are equally important as the Asian nation moves toward self-sufficiency.

Relations between the United States and Japan continued to be guided by considerations of mutual security. The return of the Ryukyuan archipelago to Japanese control had a salutary effect on American-Japanese security relationships, and leaders of both countries reaffirmed these ties as the period closed. As the agency responsible for governing the Ryukyus during the period of American tenure, the U.S. Army played an important role in fostering bilateral co-operation and friendship and conditions conducive to political stability and economic development in the affected region.

Japan's determination to avoid a resurgence of militarism and her constitutional renunciation of war dictate a military establishment designed to defend that nation against conventional aggression only. As a result, she relied upon the U.S. strategic umbrella for protection against nuclear attack, and the Mutual Security Treaty which assures Japan of that protection also provides the United States with a number of major bases to support our regional security obligations.

Negotiations concerning the future political status of the Trust Territories of the Pacific Islands have been of some interest to the Army. In May 1972 it was agreed that a Compact of Free Association should be drafted that would provide the Micronesians with full authority over internal affairs and the United States with full authority and responsibility for foreign affairs and defense. As negotiations proceed, the Army will be especially interested in defense land requirements and leasing procedures, finance, and a status-of-forces agreement.

Several developments were connected with renegotiation of the U.S.-Philippines military base agreement. Most of the technical issues

involved were resolved in a meeting of the formal working group in January 1972. Unresolved technical issues relating to criminal jurisdiction, taxation, and base land relinquishment, along with those requiring political decisions, such as Philippine authority over U.S. bases and the duration of the agreement, were referred to the ministerial level for resolution. No date had been set, as the year closed, for a resumption of these discussions.

President Nixon's announcement on July 15, 1971, that he would visit the People's Republic of China, affected U.S. relations with all of our Asian allies. On the heels of the announcement, the Joint Chiefs of Staff were tasked to analyze the U.S. military presence on Taiwan, and the Army contributed to that study and to subsequent appraisals concerning exchanges and trade with the People's Republic of China and the impact of the presidential trip. The movement toward improved relations with China added a new dimension to Army planning concerning the Pacific and the Far East, one that was expanding as the year closed.

Because of increased logistic support requirements for Laos, the U.S. Army's support element in Thailand was assigned to provide primary logistics support of U.S. military assistance in Laos. The conversion was scheduled to take effect on July 1, 1972, and as fiscal year 1972 closed, U.S. Army Support, Thailand, had assumed control over all storage and stocks connected with the Army portion of military support to Laos.

Europe

The United States Army's powerful armored/mechanized/nuclear-supported force remained on station in central Europe in fiscal year 1972 as the keystone of the North Atlantic Treaty Organization's land defenses. Major elements were 2 armored divisions, 2⅓ mechanized infantry divisions, and 2 armored cavalry regiments. Supporting units included nuclear-capable artillery units.

In April 1972 the Office of the Secretary of Defense approved a program to improve conventional combat forces in Europe. Reorganizations and reductions in headquarters and support units will permit the activation in September 1972 of two new armored battalions which will ultimately be equipped with the new M60A2 tank armed with the Shillelagh missile system; deployment of two attack helicopter companies from the United States to Europe, equipped with the AH-IG Cobra helicopter; deployment of a Chapparal-Vulcan air defense battalion from the United States to Europe, adding to the Army's low-level air defense capability; and the organization of an airborne battalion combat team in Europe. The latter will be a self-supporting force

with organic field artillery, capable of operating as an independent unit or as part of a larger force.

To accommodate these force improvements, three major headquarters and a number of miscellaneous units, detachments, and support elements—all of which had served their purpose—will be eliminated. Included are the U.S. Army, Europe, and Seventh Army Support Command; U.S. Army Materiel Command, Europe; and the Advance Weapons Support Command. Necessary missions and functions of the three headquarters are being absorbed by other major headquarters remaining in the force structure.

This force improvement plan, to be implemented over a two-year period, will provide a significant increase in conventional combat capability. At the same time, the introduction of the Lance missile system to replace the Honest John and Sergeant systems will improve the nuclear deterrent capability. Improvement along both conventional and nuclear lines will enhance the readiness and flexibility of American forces and the NATO defense of western Europe.

To standardize equipment the Army also prepared during the year to replace the Berlin Command's 105-mm. self-propelled howitzers with the 155-mm. version. The exchange was to take place in August 1972 when Berlin's 94th Artillery elements would be at the Grafenwohr training area in West Germany.

The possibility of a reduction of forces in Europe was an active subject in East-West diplomacy during the year. In October 1971 the United States participated in a NATO effort to arrange exploratory discussions with the Soviet Union on mutual and balanced force reductions in central Europe. Although these exploratory talks did not materialize, the communique following the January 1972 meeting of Warsaw Pact nations announced a willingness to discuss reductions of forces. The most significant development came in the May 1972 summit meeting of the United States and the Soviet Union, at which the heads of state agreed to enter into discussions on reciprocal reductions of armed forces and armaments, first of all in central Europe. As U.S. Army forces—conventional and nuclear—are a key element of NATO forces, these negotiations are likely to play a major role in Army force levels and posture in Europe.

The major American consideration in any decision on force reductions would be the continued security of the NATO nations. The USSR, because of its geographical position, can mobilize and reinforce its forces in central Europe much more rapidly than NATO. This and other areas thus present problems that must be taken into account in the preparation for and conduct of negotiations. The U.S. Army has participated in a number of studies seeking militarily acceptable options.

Alaska and Panama

In fiscal year 1972, U.S. Army, Alaska, the Army component of the unified Alaskan Command, continued to be responsible for the ground defense of Alaska. The year was highlighted by reorganization and the start of a reduction in military manpower. When this reduction is completed in the coming fiscal year, the major forces remaining assigned to U.S. Army, Alaska, will be an infantry brigade with three infantry battalions and a field artillery battalion, and a diversified aviation battalion tailored for operations in Alaska.

The ground defense of the Panama Canal Zone continued to be vested in the U.S. Army Southern Command and its 193d Infantry Brigade of three maneuver battalions. The 3d Battalion, 7th Special Forces Group (Airborne), located within the Canal Zone, primarily supported military assistance training in Latin America but comprised also a fourth maneuver battalion to support the command in the event of an emergency.

The emphasis at the Jungle Training Center, Fort Sherman, shifted from individual to unit training, including company-size elements of the Army and battalion-size units of the Marine Corps. Although the center is supported by Army funds and is intended to train U.S. military units and personnel in military operations and survival in a jungle environment, it is not an integral part of the Army school system. Most foreign students who have trained there have done so in conjunction with their courses at the U.S. Army School of the Americas located at Fort Gulick, Canal Zone. This school was organized in 1946 to support U.S. military assistance groups, attachés, and missions; here Latin American military and paramilitary personnel are taught U.S. military technical skills, leadership, military doctrine, and irregular warfare operations. In the period of this report, sixteen military groups provided assistance to Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, Uraguay, and Venezuela.

Continental United States

In the past fiscal year there was no change in the status of Army forces allocated to defend the continental United States. The Hercules batteries defending the urban and industrial complexes remained constant, while the Army participated in Defense Department reviews of air defense objectives and alternative force structures.

Army Readiness

Army readiness fluctuated during fiscal year 1972 under the turbulent conditions attending withdrawal from Vietnam and contraction of

the active Army. Reserve Component readiness lagged behind that of the active Army but improved gradually, especially in the logistics area, as a result of the increasing availability of equipment released by the liquidation of the Vietnam War.

Late in calendar year 1971 the Congress directed a 50,000 man-year reduction for fiscal year 1972. To meet it the Army instituted a special early release program through which first term enlisted personnel, with some exceptions, were released from five to six months ahead of normal schedules, while a four-month delay in legislative action to extend the draft retarded the acquisition of new personnel. Qualitative considerations had to be sacrificed to meet quantitative goals, leading to serious imbalances in personnel qualified in various military specialties. A rapid decline in trained strength early in calendar year 1972 led the Secretary of Defense to cancel the early release program in May for at least ninety days. May 1972 was the month in which the Army "bottomed out" in its personnel situation. Recovery, on the other hand, was hampered by the move toward a zero draft and an all-volunteer force.

Successful efforts at all levels to reduce an overstrength in general support forces made it possible to increase the strength of the Strategic Army force. Personnel turnover in the Continental Army Command gradually eased as the year closed, with shortages of qualified enlisted men and a mismatch of personnel and positions as the problems most frequently reported.

As reported last year, the Army in 1971 instituted a unit-of-choice recruiting program to spur enlistments in the combat arms. The success of this effort led to the expansion of the technique to the noncombat arms under a Special Unit Enlistment program. Selected major units within the continental United States and in Hawaii were thus able to recruit individuals for specific skill training and assignment. These recruiting innovations gathered momentum and demonstrated a measure of success far exceeding expectations—so much so that the program was extended to additional units, with anticipated beneficial effects on strengths in Strategic Army Force and Reforger units—the latter those stateside elements earmarked to augment Army forces in Europe using prepositioned equipment.

The Army's logistic readiness remained relatively stable during fiscal year 1972. As the period closed, 91 percent of all reporting units had achieved their authorized levels of organization for equipment on hand. Reorganizational adjustments under certain (H-Series TOE) equipment authorizations caused some equipment shortage and a corresponding deficiency in readiness, but there were no major logistical problems in the period. As noted above, there was logistical improve-

ment in the Reserve Components despite the diversion of some programmed assets.

The Army's training readiness, both individual and unit, lagged behind personnel recovery and was complicated by heavy commitments within the continental United States as the summer of 1972 opened. Acute shortages still existed at year's end within various hard skill, long-lead-time occupational specialties, and recovery would take some time. While unit training was continuing where possible, satisfactory levels will depend upon the achievement of personnel goals.

It is evident from the foregoing that, while there has been great improvement in Army readiness, manpower is the key to resolving most of the problems in this field. While further recovery is anticipated through the last half of calendar year 1972, concern exists for the remainder of fiscal year 1973 and for 1974 as well. It is difficult to predict progress, as it depends upon such unknown quantities as legislation (authorizing combat arms enlistment bonuses and radio-television advertising, for example), decisions on draft calls in fiscal year 1973, and progress in achieving an all-volunteer force.

Command and Control

Because of their size, complexity, and worldwide dispersion, American military forces require sophisticated communications systems for effective command and control. Organization, facilities, equipment, methods, and techniques must be constantly monitored, modified, and modernized to insure that command and control over military forces is exercised in an efficient and responsive manner. Recently, automated equipment has come to play an increasingly important role in command and control, requiring constant updating of programs and systems.

In October 1971, for example, Honeywell Information Systems, Inc., was awarded a contract for standard computer systems for the Worldwide Command and Control System. The Army was designated to procure seven of thirty-five systems under the contract. These will be installed between October 1972 and September 1973 at Headquarters, Department of the Army, for operations and intelligence use; Headquarters, U.S. European Command; Headquarters of the U.S. Army's European, Pacific, and Continental Army Commands; U.S. Army War College; and Headquarters, U.S. Military Traffic Management and Terminal Service. The Army continued to support the unified U.S. European and Southern Commands in this technical field and participated in the worldwide system program through the Joint Chiefs of Staff and in representation on an Automatic Data Processing (ADP) Standards Policy Group.

The master plan of the Headquarters, Department of the Army

Command and Control System, and the plans of each operations center in that system are reviewed annually to appraise facilities, personnel, and funding and to determine resource requirements for five future fiscal years. The original master plan was that of fiscal year 1970; that for fiscal year 1973 was approved on March 1, 1972.

Since 1966 the departmental headquarters has recognized the need for a new command building for the primary Headquarters, Department of the Army general war headquarters (DEPTAR/MAIN). The cost of a separate installation, estimated at about $8 million, was considered prohibitive. An alternative plan for an addition to an existing building, costing about $2 million, was submitted to the Congress in the fiscal year 1973 military construction budget. In June 1972 the House of Representatives deferred the project for at least one year. Improvements in ADP equipment at existing facilities were not dependent upon congressional approval of new command facilities, and a UNIVAC 490 computer was installed at DEPTAR/MAIN late in 1971. A worldwide computer system will be received in fiscal year 1973.

There were changes in the Army Operations Center system during the period of this report, some completed, some initiated, and all designed to permit the center to meet the information requirements of national command authorities, the Joint Chiefs of Staff, and the Army Chief of Staff. Proponency for all station codes used within Army information systems to report the location of Army units was centralized within the Office of the Deputy Chief of Staff for Military Operations, improving the interface between unilateral Army systems using Army codes and Army component systems of the Worldwide Military Command and Control System using joint station codes. The Joint Chiefs of Staff Force Status and Identity Report was revised worldwide in March 1972 and the Army Operations Center System's forces files were redesigned to accommodate new data elements. In June 1972, work was begun to convert the Army system to make it an integral part of the worldwide automated data processing update program.

The Department of the Army participated in NIGHT TRAIN 72, a command post exercise sponsored by the Joint Chiefs of Staff to exercise and train the joint organization, the military services, selected Defense Department agencies, and four unified and specified commands in planning for and coping with minor contingencies. The scenario portrayed a situation in which the United States was responding to a request for assistance from a friendly government. The participants had an opportunity to develop planning options and use selected narrative and automated reporting systems to expedite decisions under emergency conditions. The Army Operations Center, appropriate staff agencies, and seven major commands participated in the exercise.

Military Support Operations

Because of a decrease in the level of large-scale demonstration connected with civil disorder, U.S. active military forces were not deployed during fiscal year 1972. However, against the possibility of a disturbance connected with the Governors' Conference at San Juan, Puerto Rico, in the period of September 10–14, 1971, a Marine regiment assigned to the Atlantic Command was placed on alert and a liaison representative of the Army Chief of Staff and a Department of the Army liaison team were sent to the island to co-ordinate with local officials and Department of Justice representatives. The conference was held without incident and the standby forces were not deployed. This was the first instance of detailed planning to deploy forces in a civil disturbance outside of the continental United States.

Despite the downturn in civil disturbance, training continued at the Civil Disturbance Orientation Course at Fort Gordon, Georgia. The course is conducted by the Army for personnel of municipal, state, and federal agencies, to provide a general knowledge of civil disturbance planning and operations. The emphasis is given to preventive and preparatory measures during an actual confrontation. Twenty-two classes are conducted each fiscal year; in 1972, 782 civilians, 342 National Guard, and 340 active military attended the course.

The Army supported the U.S. Secret Service in explosive ordnance disposal at an increased rate during fiscal year 1972. The assistance consists of protecting the President and Vice President of the United States, candidates for those offices, and visiting heads of foreign states, by providing personnel trained in the handling and elimination of explosive hazards. As a result of the additional activity engendered by the 1972 national election campaign, Army support was provided in connection with 622 missions, with a total of 78,698 man-hours expended. Army personnel also responded to over 4,700 requests for assistance from civil authorities regarding hazards associated with bomb threats, rendering homemade bombs safe, disposal of war souvenirs, and transportation accidents involving explosives. A decrease in the number of requests in this area might be attributable to the results of the training program and the increasing capability of civil law enforcement agencies for dealing with this type of hazard.

At the request of the Law Enforcement Assistance Administration and with all costs funded by the Department of Justice, the Army established a course to train public safety and law enforcement officers to render safe and dispose of improvised explosive devices. The initial three-week course of instruction began on January 18, 1971, at the U.S. Army Missile and Munitions Center and School, Redstone Arsenal, Alabama, with one course per month. The large number of requests for attend-

ance at the course led to its expansion to two classes per month beginning in October 1971. Student output was increased to 400 per year.

The Army provided military support in disaster relief as well as in civil disturbances. Of thirty-five declared major disasters monitored during the year, three were of more than routine significance. Since the Secretary of the Army is the executive agent for all Department of Defense support furnished in declared major disasters, the Directorate of Military Support, the action agency for the executive agent, closely monitored the floods in Logan and Mingo Counties, West Virginia, during late February and March 1972. Support included forty-three Army personnel and such major equipment as helicopters, generators, commercial radios, trucks, and laundry, bath, and purification units. Also in March 1972, when a barge loaded with 640 tons of chlorine broke loose on the Ohio River near Louisville, Kentucky, the Army provided personnel and equipment, including a hospital train, in response to a request for assistance from the Office of Emergency Preparedness. Torrential rains in the Rapid City, South Dakota, area resulted in a presidential declaration of a major disaster on June 10, 1972. While the bulk of the support was furnished by the Air Force, at the peak of the floods the Army furnished fifty-five personnel, two helicopters, ten vehicles, and miscellaneous communications equipment. While this support was being provided by the Sixth U.S. Army, the First U.S. Army was heavily committed in relief operations connected with Hurricane Agnes throughout the states of Pennsylvania, New York, Maryland, and Virginia. At the close of fiscal year 1972, the Department of the Army along with the Departments of the Air Force and the Navy had committed over 500 personnel, 50 aircraft, and a long list of materials including 6,900 blankets, 6,000 cots, 135,000 sandbags, and 150 vehicles. Under the authority provided by DOD Directive 3025.1, disaster assistance was also provided to fight a forest fire on the Apache Reservation in the vicinity of White River, Arizona, during the period of June 28–July 9, 1971.

The Military Assistance to Safety and Traffic (MAST) Program continued at five test sites (three Army and two Air Force) during the fiscal year. The program has demonstrated that the concept of using military helicopters and paramedical personnel to respond to civilian emergencies is operationally feasible. It has also been a source of training and motivation for the medical unit. It brings together military and civilian authorities and provides efficient procedures to make the military contribution rapid and effective. Military feasibility was established by the fact that MAST missions were successfully carried out by regularly constituted units with no additional resources committed to the program. Based on test results and evaluations of two principal

studies by Ohio State University and Stanford Research Institute, the military departments recommended limited expansion of the MAST program. The concept of expansion to an additional twenty-five sites was approved by the Secretary of Defense; however, it was determined that no new sites would be established until legislative authority was granted. With approval of the site expansion plan, the MAST Interagency Coordinating Committee (Representatives of the Departments of Defense; Transportation; and Health, Education, and Welfare) visited and co-ordinated with representatives at all proposed sites during February and March 1972. At the end of the year, a total of 2,494 hours and 1,165 missions had been flown, evacuating 1,433 civilian patients. This represents 1.6 missions per day, 2.0 patients per day, and an average of 2.1 hours per mission. As the year closed, legislation was introduced in Congress which would authorize the Secretary of Defense to utilize Department of Defense resources for the purpose of providing medical emergency transportation services to civilians.

Under the President's program to provide federal resources to help the District of Columbia combat crime, hangar facilities were provided at the Anacostia Naval Air Station in Washington, D.C., to house three helicopters under commercial lease to the Metropolitan Police Department for police use. Fuel for the aircraft was provided by Andrews Air Force Base in nearby Maryland.

Throughout fiscal year 1972, the Director of Military Support acted as the DOD Project Coordinator for matters pertaining to site preparation, medical support, emergency ordnance disposal, and related logistic support for the U.S. International Transportation Exposition (TRANSPO–72), held at Dulles International Airport from May 26 to June 4, 1972. The Army installed 23 Bailey bridges and 5,000 square feet of aluminum matting, supplied 20 general purpose tents, established and operated a transportable hospital, and provided miscellaneous explosive ordnance disposal, engineer, and communications support.

Psychological Operations, Special Forces Activities, and Civil Affairs

In fiscal year 1972 the U.S. Army and the U.S. Information Agency (USIA) embarked upon an experimental personnel exchange program designed to develop a mutual understanding of each other's policies and operations. The program was launched in September 1971 with the assignment of two Foreign Service Information Officers to the Psychological Operations Staff of the Army's Office of the Deputy Chief of Staff for Military Operations. Two Army officers from that staff were assigned in turn to the USIA. As the year closed, there was interest at the upper levels of the Department of Defense in expanding the program to include all of the military services in the exchange.

The psychological operations (PSYOP) field has not been exempt from the processes of automation, and during the past year field testing of a computerized psychological operations information storage and retrieval system was begun. The PSYOP Automated Management Information System is a computerized information storage and retrieval system designed to provide for the systematic collection, analysis, dissemination, and use of psychological operations data. Field tests of a Foreign Media Analysis subsystem were conducted jointly by the Joint Staff, the Department of the Army, and the 7th Psychological Operations Group, Okinawa, during the first half of fiscal year 1972. As a result of the tests, the Office of the Joint Chiefs of Staff in February 1972 tasked the Commander in Chief, Pacific, to place the subsystem in an operational status as a separate reporting entity. Development was begun on an assessment and estimate subsystem in March 1972 with the 4th Psychological Operations Group at Fort Bragg, North Carolina, providing field support.

In another development in this field, the Army authorized partial activation of a PSYOP Support Activity in June 1972, the result of a Joint Staff request for support for increased psychological operations in Indochina. A concept and a proposed organization for this element had been developed following studies by the Army's PSYOP staff in 1970–71, studies which indicated a need for an element capable of providing PSYOP intelligence analysis, planning, and other assistance to the Joint Staff. The activity was located temporarily in the Army Operations Center and was staffed by two officers from the departmental PSYOP staff, two USIA exchange officers, and selected Army mobilization designees assigned to the Department of the Army staff.

The decline in the over-all size of the Army's Special Forces that began in 1969 levelled off in fiscal year 1972. As the year closed there were four active Army Special Forces Groups. Three of these were converted to a new "H" series Tables of Organization and Equipment and are now in a battalion and company configuration. The last will follow suit in the second quarter of fiscal year 1973. A part of the conversion was the inactivation of the 8th Special Forces Group in Panama and its replacement by a battalion of the 7th Special Forces Group from Fort Bragg, North Carolina.

Emphasis was placed during the period on overseas training for reserve component special forces units. Training was conducted in both Europe and the Middle East, and this will be expanded in the coming year. Such training not only advances unit readiness but also enhances recruiting and retention of personnel in these organizations. The four reserve component Special Forces Groups were scheduled for conversion to the "H" series tables during the first quarter of fiscal year 1973.

Special Forces units stationed in the continental United States have participated regularly in domestic action projects as adjuncts to training exercises. Personnel have received valuable experience in exercising their professional skills while participating in these projects. Such projects, co-ordinated with federal, state, and local agencies, have contributed to an improved standard of living for many citizens while improving unit efficiency.

There was progress during the reporting period in the Army's ability to perform civil affairs functions in support of national security objectives. In August 1971, for example, a Department of the Army Committee for Civil Affairs Development was established as a consultative body to bring together key elements of the Army's active and reserve civil affairs communities and insure that civil affairs elements are adequately organized and trained and capable of conducting operations under diverse circumstances. Two formal meetings were held, and five subcommittees were organized to address problems of concepts and doctrine, manpower, training, organization, research, and studies.

The committee contributed to a survey of civil affairs officer personnel assets in the Army Reserve and to the development of improved tables of organization and equipment that would reflect the changing missions and objectives assigned to the Army to further the President's strategy for peace. The committee was a focal point of study efforts to define the role of civil affairs in domestic civil defense as well as the civil-military role of indigenous armed forces. It also assisted in the development of a computer-assisted gaming technique to train civil affairs units and personnel, gave attention to functional seminar training, and contributed to plans for a comprehensive body of civil affairs training literature.

Humanitarian Law and Political Asylum

In late 1969, the International Committee of the Red Cross proposed consultations to improve humanitarian law as set forth in the Geneva Conventions and Protocols. The following year, the committee submitted a provisional agenda and documentary materials for consideration. An initial conference of government experts representing thirty-nine nations was held at Geneva, Switzerland, during May and June of 1971. A delegation from the United States attended, and this conference developed proposed texts of two draft protocols designed to supplement existing humanitarian law. The two protocols were designed to deal with international armed conflicts on the one hand and internal conflicts on the other. As appropriate, each dealt with the behavior and protection of the sick and wounded, including the protection of medical aviation, protection to be afforded the civilian popula-

tion, protection for civil defense personnel, and reinforcement of the law presently in force.

A second conference was held in Geneva in the period May 3–June 2, 1972. Delegations attended representing seventy-four nations and international organizations. The U.S. delegation consisted of twenty government experts and included U.S. Army representatives from the Offices of the Judge Advocate General and the Surgeon General. At this conference the U.S. delegation sought to improve the protection to be given to medical aviation personnel, the sick and wounded, and aviators in distress; to improve the implementation of existing law, particularly the establishment of the protecting power for prisoners of war; to prevent undue expansion of the protection afforded guerrillas without commensurate responsibilities; and to prevent the erosion of protection afforded civilians.

The results of the conference were mixed. The subject of protection for sick and wounded appeared ready for final agreement to be worked out in a diplomatic conference. Discussion of other subject areas revealed sharp divisions of opinion and the expectation of some difficulty of resolution in a diplomatic conference. At the conclusion of the meetings, the president of the International Committee of the Red Cross announced plans for a diplomatic conference in mid-1974 to ratify revised protocols adopted at the 1972 conference.

In another area of activity with humanitarian considerations, the incident of the Lithuanian seaman who attempted to defect from a Soviet vessel on November 30, 1970, highlighted a need to insure that all U.S. government personnel are informed of procedures for handling requests by foreign nationals for political asylum and temporary refuge. Long-standing U.S. policy has provided that foreign nationals, from within the United States, who request asylum of the United States government owing to persecution or fear of persecution should be given full opportunity to have the request considered on its merits. The policy stipulates that the request of a person for asylum shall not be arbitrarily or summarily refused by U.S. personnel and that each request must be dealt with on an individual basis, taking into account humanitarian principles, applicable laws, and other factors. As a party to the 1951 *Protocol Relating to the Status of Refugees,* the United States has an international treaty obligation to refrain from forcibly returning a refugee to conditions of persecution if residing within areas subject to U.S. jurisdiction.

The President in 1971 re-emphasized the U.S. commitment to the provision of asylum for refugees and directed that appropriate departments and agencies of the government, under State Department coordination, take steps to bring to every echelon of the government that

could possibly be involved with persons seeking asylum a sense of the depth and urgency of America's commitment to the 1951 Protocol.

On January 7, 1972, the Acting Secretary of State forwarded to all government departments and agencies a copy of comprehensive procedures for handling requests for asylum by foreign nationals in the United States and abroad. The procedures were forwarded for the guidance of all government personnel who were likely to have contact, in the course of their duties, with foreign nationals. The Department of Defense in turn promulgated a directive (No. 2000.11) on March 3, 1972, to make the asylum procedures applicable to all military departments, defense agencies, and unified and specified commands.

To insure uniform policies and procedures, the Department of the Army issued Army Regulation 550–1 on May 25, 1972, assigning to the Deputy Chief of Staff for Military Operations staff supervision for the implementation of policies and procedures concerning the handling of political asylum cases arising in areas of departmental responsibility. A part of that responsibility includes notification to and co-ordination with the Department of State, the Immigation and Naturalization Service, and the Assistant Secretary of Defense for International Security Affairs.

Security and Cultural Assistance

In his foreign aid message to Congress on April 21, 1971, the President proposed a realignment of foreign aid into two programs, one oriented to military assistance, the other to economic and humanitarian assistance. In addition to the established elements of military assistance (grant aid, foreign military sales, donation of excess military equipment), the proposal sought to include public safety and supporting economic assistance under a comprehensive International Security Assistance Act, with all other forms of aid consolidated under a separate act. Thus the term "security assistance" entered the Department of Defense vocabulary, expanding the familiar term, "military assistance."

The President also proposed—and in fact established—a Coordinator for Security Assistance, at Under Secretary level in the Department of State, to advance this program. The Defense Department reorganized its headquarters in September 1971 to create a Defense Security Assistance Agency, and the Army Staff in turn shifted some personnel and restructured its Military Assistance Division in order better to be prepared to handle the anticipated program. Further organizational and program realignments were studied to advance the objectives of the Nixon Doctrine: to assist allies and other friendly nations to achieve self-sufficiency, to participate in mutual defense, and to carry their fare share of the burden.

As a result of revisions in the over-all unified command structure, the Army took over from the Air Force the responsibility for administrative and logistical support of military assistance advisory groups and missions in the Middle East, Africa, and South Asia. United States Army, Europe, was designated the Army's executive agent to provide this support beginning on January 1, 1972. This date was later extended to July 1, 1972, in order to accommodate budgetary considerations and allow time for a smooth transition between the services.

To carry out their portions of the Defense Military Assistance Program in fiscal year 1972, the Army and the other services operated for the first eight months on the basis of temporary continuing congressional funding authorizations. On February 7, 1972, the Congress passed the Foreign Assistance Act of 1971, which followed past patterns of such legislation, thus rejecting the President's proposed realignment of foreign aid. Despite the delay, Army operations were not seriously affected, and materiel, training, and other programed services were furnished to friendly countries as planned.

Since 1967 there has been a gradual trend away from grant aid in favor of foreign military sales in countries that are capable of participating in the sales program. To a limited extent, the sales effort received an indirect boost from a provision of the 1971 Act that required grant-aid countries to deposit in host country currency to the account of the United States a sum equal to 10 percent of the value of the grant-aid program. Although some countries took exception to this provision, there has been general acceptance and little adverse impact on the grant-aid program or on Army security assistance operations, except for military assistance training in several countries.

To increase foreign military sales in line with Defense Department objectives, the Army suggested early in 1972 that briefing teams orient and instruct U.S. country teams and host country representatives on the various aspects of the sales program. The Army later proposed that teams be dispatched to Latin American and African countries during the first quarter of fiscal year 1973. The Office of the Secretary of Defense indicated that the existing practice of sending custom tailored teams composed of Defense Security Assistance Agency, military department, and industry representatives to foreign countries for specific missions was the preferred approach.

The downturn of the war in Vietnam generated renewed interest in excess defense materiel, including weapons and equipment of all kinds. Excess stocks have been used in the past to meet grant-aid military sales requirements at reduced cost to the United States. During fiscal year 1972 the General Accounting Office, the Defense Security Assistance

Agency, and the military services all reviewed this subject, not only in Vietnam but worldwide.

In line with the Nixon Doctrine, the Defense Department continued to develop total force planning, which by definition includes the use of allied forces as well as the active and reserve forces of the United States to meet threats in various geographical regions of the world. A fundamental concept—to rely on allied manpower in the affected region with U.S. materiel and combat support—continued, in effect, the policy prevailing in Vietnam. It also continued the competition between U.S. and allied forces for American funds, materiel, and other resources. When those resources are insufficient to meet the needs of all claimants, those concerned with resource allocation and distribution require guidance concerning priorities. While such guidance with respect to allies is available in several Defense Department and Joint Chiefs of Staff documents, it has not been reflected adequately in either of the basic Army documents used for this purpose: the Department of the Army Master Priority List, and Army Regulation 11-12, Logistic Priorities. Army Staff attention was directed to this area in the past year.

A related problem raised through the concept of total force planning is the paucity of information on the operational readiness of allies. Such information is essential if the United States is to place a reasonable degree of confidence in the validity of such planning. For a variety of military and political reasons, this information is often not available. U.S. Army elements of military assistance advisory groups in foreign countries are much too heavily burdened with other tasks to undertake to report on allied operational readiness. Their personnel strengths, already reduced over the past few years, are reduced an additional 15 percent by the Foreign Assistance Act of 1971. The Army has brought this problem to the attention of higher authority and suggested that host countries be relied upon to furnish pertinent data in good faith as a contribution to common defense objectives. A decision on the proposal and possible format for host nation reporting of operational readiness were being considered as the year closed.

With respect to security assistance training, a Washington orientation was developed for presentation to certain categories of personnel prior to assignment. Tailored to fit the specific requirements of the respective countries, it includes briefings by various interested Defense Department agencies, including those of the Army and the other services. During the fiscal year some twenty-eight senior advisory group designees ranging in grade from lieutenant colonel to major general and scheduled for duty in nineteen countries were given the briefing in Washington, D.C.

In the first half of the fiscal year the Joint Chiefs of Staff, in coordination with the military departments and commanders of unified

commands, conducted a review of the foreign military training program to determine if it was being implemented within the intent of the Nixon Doctrine and related security assistance objectives, plans, and programs. Several modifications were recommended.

The combined Military Assistance Grant Aid, Military Assistance Service Funded, and Foreign Military Sales programs for furnishing Army training to foreign personnel exceeded the previous year's program in the number of training spaces utilized, the number of personnel trained, and the over-all dollar value. The following table reflects the extent of Army training support in fiscal year 1972 under the Foreign Assistance Act.

In January 1972, at the request of the government of Indonesia, a military training team of two U.S. Army officers was furnished to assist that nation's armed forces to plan for the systematic development of a modern defense management capability at the military department and Ministry of Defense levels.

On March 10, 1972, the Chief of Staff approved a merger of the Military Assistance Officer and Foreign Area Specialty Programs into the Foreign Area Officer Management System. Consolidation of the two programs was indicated because of their basic similarities. Both are concerned with developing top-quality officers to serve worldwide in command, staff, advisory, and attaché positions requiring area expertise, linguistic proficiency, and socioeconomic and political awareness, together with a sound professional military background. As these programs have grown (433 and 563 members respectively as of June 30, 1972) they have become broader in scope and direction. As the year closed, about 900 positions were identified for the consolidated program, and a steering committee composed of appropriate staff agency representatives was working out implementation procedures.

Friendship, understanding, and peace among the peoples of the world depend to a large degree upon the ability to communicate, and the complexity of some languages in both their written and spoken forms often inhibits verbal intercourse. The ideographic form of the written oriental languages has posed a problem for the Chinese, Japanese, and Koreans, for example, as they seek to use their ancient languages in this modern period of technological competition. The Chinese language is the mother tongue of more people than any other in the world, and the written language of an even larger proportion of the world's population. Yet the oriental nations have not had a means whereby their ideographic languages might be composed for printing purposes. The People's Republic of China has been unable to adapt Chinese to a phonetic (Latin) alphabet because of their inability to use automatic typesetting equipment for ideographs. Now a twenty-year

	Europe Area	Pacific Latin	Latin America Area	ABC [1] Area	Total
Continental United States School					
Spaces	3374	3414	290	332	7410
Students	2744	2355	219	251	5569
Overseas School					
Spaces	553	1719	1934	405	4611
Students	553	1719	1903	405	4580
Third Country					
Spaces	45672				45672
Students	37752				37752
Orientation					
Tours	19	20	16		55
Participants	90	74	94		258
Mobile Training					
Teams (man-years)	11.1	8.5	32.0	.04	51.6
Field Training					
Service (man-years)	23.2	22.2	0.6	0	46.0
Training for Other Departments					
Spaces	287	12	7	0	306
Personnel	246	12	4	0	262
					(in millions)
Total Training Dollar Value					
Military Assistance Grant Aid					$13.749
Military Assistance Service Funded					$ 6.744
Foreign Military Sales					$10.361
Total					$30.854

[1] Australia, Britain, Canada.

research and development effort by the U.S. Army holds the promise of a breakthrough in this field.

The Army has developed an ideographic composing machine that makes it possible to compose the Chinese, Japanese, and Korean languages rapidly and economically. Two pilot models, the only ones in existence, were delivered to the 7th Psychological Operations Group on Okinawa in November 1970, one to be used there, the other to be used by the group's augmentation detachment in Japan.

For the first time, it is possible to compose ideographic languages on a keyboard-operated photocomposing machine. Prior to this development, large-volume production of ideographic language text was highly restricted and was often done by a laborious calligraphy process before reproduction. With the new machine, an operator who can write Chinese, Japanese, or Korean merely strikes the keys in proper sequence (ideographic languages are written in a stroke sequence, much in the manner that English is written in a letter sequence) to form the ideograph, and a strip of exposed film containing the full text of the assembled ideographs is produced. When developed, the film can be used in any of the conventional printing processes. The machine can also punch tapes; information may be tape-coded and transmitted over regular teletype facilities to another tape at the receiving terminal. The receiving tape in turn may be fed into a second composing machine to produce text at a rate of more than 500 ideographs per minute. These techniques may be adapted to modern printing, telegraph, and computer forms for rapid communication in countries where ideographic languages are used. The machine provides speed and accuracy similar to that of automatic typesetting equipment used in western language publication.

Although the ideographic composing machine does use advanced electronic circuitry, a laser beam, holographic characters, and video systems, it is still about five years behind the state of the art where its components are concerned. Some maintenance difficulties have been experienced, but no insurmountable problems exist. It is planned to develop a second-generation machine based upon experience achieved with the pilot and using the latest advances in component development.

The ideographic composing machine's use in cultural, educational, and informational contexts is readily apparent. It was discussed with the People's Republic of China on the occasion of President Nixon's visit there in May 1972. It should prove to be an effective tool in efforts to educate and inform public opinion throughout the world and to further understanding and co-operation between the peoples of the East and West.

Tactical Nuclear Weapons Program

In the 1972 fiscal year, tactical nuclear weapons remained a key element in U.S. and allied military force posture. The advent of approximate strategic nuclear parity with Russia narrowed the range of conflicts which can be deterred by strategic nuclear forces alone. Under these circumstances, tactical nuclear weapons acquired increased importance in contributing to the deterrence of large-scale conventional as well as tactical nuclear attack by potential enemies of the United States. In addition, our tactical nuclear capability contributes to preventing attempts at political coercion and provides the President with a range of credible options to counter aggression. These weapons are an integral element of general purpose forces and complement conventional and strategic nuclear capabilities.

The role of tactical nuclear weapons in war and their contribution under peacetime conditions was reviewed during the period of this report to clarify doctrine concerning deployment and employment of nuclear forces in support of theater operations and to expand on guidance for theater commanders, force structure planners, and tactical nuclear weapons research and development efforts. Refinements in doctrine will be helpful to the United States and its allies and will reduce the risk of miscalculation on the part of potential enemies.

A tactical nuclear weapons symposium was conducted at Headquarters, Department of the Army, in December 1971, attended by high level representatives from government, oversea and continental U.S. commands, the scientific community, independent research organizations, and the organization of the Joint Chiefs of Staff. This was the first in a series of efforts to apply a broad base of expertise to the problem of better defining and articulating the role of tactical nuclear weapons for deterrence and termination of armed conflict.

Following the symposium, the Army organized an Interagency Advisory Council to contribute technical expertise in connection with a study on nuclear weapons concepts, scheduled for completion in December 1972.

Civil Defense

Civil defense is a vital part of the nation's over-all strategic posture and is essential to the protection of the people in the event of nuclear attack upon the United States. A strong civil defense organization throughout the United States not only serves as a deterrent to attack but could also serve to tip the balance for survival of the nation should an attack occur.

Civil defense provides protection in peacetime too. It is useful in

safeguarding people from violent storms, earthquakes, civil disorders, environmental hazards, and other threats to life and well-being.

For the past eight years, responsibility for civil defense has been assigned to the Secretary of the Army and has resided in the Office of Civil Defense, Department of the Army. On May 5, 1972, a major organizational change occurred when the Secretary of Defense established the Defense Civil Preparedness Agency (DCPA) as an agency of the Department of Defense under the direction, authority, and control of the Secretary of Defense, to carry forward the civil defense role under Defense Department policies, directives, and instructions. At the same time, the Office of Civil Defense, Department of the Army, was disestablished and its funds, personnel, manpower spaces, and other resources transferred to the DCPA.

During fiscal year 1972, major emphasis was placed on development or updating of emergency plans, establishing emergency operating centers, improving warning and emergency communications capabilities, and providing emergency power sources. The need for increased professionalism was stressed, as was the value of training, including participation in emergency operations simulations.

The on-site assistance program received top priority in the realigned civil defense program during fiscal year 1972. The objective is to give concrete and immediate assistance, in addition to comprehensive long-range readiness help, while making use of existing federal, state, and local resources; i.e., a surplus and excess property program, planning, training, and technical assistance. By the close of fiscal year 1972, on-site visits by joint civil preparedness teams had been made or were scheduled for 213 localities in 41 states and Puerto Rico.

The responsibility and manner of passing alert messages to federal agencies was under review during the year. The federal portion of the civil defense system is the National Warning System. Almost instantaneous attack warning information can be disseminated to state and local warning points from three national warning centers continuously manned and operated for the Defense Civil Preparedness Agency by U.S. Army Strategic Communications Command warning officers. The system includes 297 warning points at federal installations throughout the United States and 870 state and local warning points, a total of 1,167 as of the end of the fiscal year. The National Warning System was credited with saving many lives in disasters that occurred throughout the nation during the fiscal year. It was used to disseminate timely tornado warnings in six states and to co-ordinate activities during a three-day blizzard in Nebraska. During Hurricane Agnes, it was used extensively by the states to pass flood warnings and relay requests for emergency equipment during severe flooding.

The Decision Information Distribution System, a low-frequency radio network, has been designed to improve and expand nationwide warning. A contract was let and construction was in progress at Edgewood Arsenal, Maryland, on the first of ten transmission facilities. This facility will serve a ten-state area from Virginia to Massachusetts and will be operational early in 1973. It could form the basis for automatic indoor home warning. Special low-frequency home warning receivers are under development, along with devices which could be incorporated in regular television or entertainment radios.

The Emergency Broadcast System is designed for use by the President and national, state, and local officials to reach the public promptly with emergency information preceding, during, and following an enemy attack. Its plan is designed to fulfill requirements of the White House, the Office of Emergency Preparedness, and the Defense Civil Preparedness Agency. The Emergency Broadcast System is managed by the Federal Communications Commission in co-operation with the broadcasting industry. By the end of the fiscal year, more than 3,000 broadcast stations had been authorized to participate in the system, and DCPA is providing fallout shelters, emergency generators, and ancillary equipment for 569 of these stations through the contract supervision of the Corps of Engineers and the Naval Facilities Engineering Command. This protection program permits the stations to remain on the air during national or local emergencies to broadcast essential information, including that originating from the emergency operating center during day-to-day disasters and under attack conditions.

An objective of DCPA is to provide the entire population of the United States with protection from radioactive fallout that could result from nuclear attack. In the past ten years, much progress has been made toward this objective.

The National Fallout Shelter Survey, conducted for DCPA by the U.S. Army Corps of Engineers and the Naval Facilities Engineering Command, continued during fiscal year 1972 to locate potential fallout shelter space. As in the past few years, survey operations continued to be principally of an updating nature.

Military support for civil authority received increased emphasis from the armed services during the fiscal year. All services have recognized the need for a strong civil preparedness program and have developed comprehensive survival and recovery plans to assist civil authority in the event of natural disaster or enemy attack.

The Army has primary responsibility for providing military support. The Commanding General, U.S. Continental Army Command, and continental U.S. Army commanders provide planning guidance to state adjutants general in the preparation of military support for civil defense

plans in each of the forty-eight contiguous states. In Alaska, Hawaii, and Puerto Rico, similar plans are developed by the appropriate unified command and the state adjutant general. Current plans call for each adjutant general, when called to federal service as a state area commander, to exercise operational control over military units made available for transattack and postattack military support missions for civil defense.

The Army established eight civil defense support detachments to augment communications and security personnel at DCPA Federal Regional Centers throughout the country in the event of enemy attack or natural disaster. In addition, mobilization designee positions for Army, Navy, and Air Force reservists in direct support of civil defense activities were authorized by a Department of Defense directive. The objective of this new program is to strengthen the emergency capabilities of civil authority at federal, state, and local level by augmenting civil preparedness staffs with properly qualified military reservists.

The transfer of the civil defense agency from the Office of the Secretary of the Army to the Office of the Secretary of Defense has not changed the mission of the Army either in its military support to civil defense role or in the concept of military support to disaster stricken areas. The Army will continue to provide communications support to the Defense Civil Preparedness Agency; the U.S. Army Strategic Communications Command will be responsible for the operation and maintenance of civil defense communications, and the Department of the Army will provide wholesale logistics support for civil defense communications.

III. The War in Vietnam

Operations

In April 1969, President Nixon stated that the redeployment of United States troops from Vietnam would depend upon three factors: progress in the peace talks with North Vietnamese representatives in Paris; the level of enemy activity on the battlefield; and progress in Vietnamization, the process under which the South Vietnamese were being equipped and trained to assume responsibility for their own defense. The President's initial announcement of troop withdrawal was made during a joint conference with South Vietnamese President Thieu in June 1969. At that time he stated that 25,000 U.S. troops would be withdrawn from Vietnam during July and August 1969. Since that time, and up to June 30, 1972, over half a million American servicemen, 336,000 of them Army personnel, have been redeployed from the Republic of Vietnam. These withdrawals were made in twelve increments, the last five of them during fiscal year 1972.

The eighth redeployment increment, some 28,700 U.S. troops, was completed on August 31, 1971. Major Army units included the 1st Brigade of the 5th Infantry Division (Mechanized), and the 173d Airborne Brigade. To reach the President's specified goal of 184,000, the ninth increment of 42,000 troops was redeployed between September 1 and November 30, 1971, and included the 11th and 198th Infantry Brigades of the 23d Infantry Division.

On November 12, 1971, President Nixon announced another reduction of 45,000 U.S. troops to attain a level of 139,000 by January 31, 1972. Thus the tenth increment was initiated on December 1, 1971, and totalled 45,000 spaces. Major units redeployed were the 1st and 3d Brigades of the 101st Airborne Division (Airmobile).

On January 13, 1972, the President announced a further reduction of 70,000 U.S. troops beginning February 1, 1972, to reach a level of 69,000 troops in Vietnam by May 1, 1972. The eleventh increment brought the remainder of the 101st Airborne Division (Airmobile) home, the last U.S. Army division to redeploy.

Finally, on April 26, 1972, the President announced that an additional 20,000 U.S. troops would depart the battle zone in May and June 1972, bringing the over-all U.S. troop level down to 49,000 and the Army to 31,900. With the redeployment of the 3rd Brigade of

the 1st Cavalry Division (Airmobile) and the 196th Infantry Brigade in this twelfth increment, there were only two U.S. Army maneuver battalions in Vietnam at the end of fiscal year 1972.

Army battle casualties in Southeast Asia during the period of the fiscal year—July 1, 1971, through June 30, 1972—decreased markedly over the previous twelve-month period. Battle dead and wounded numbered 367 and 2,175 respectively in fiscal year 1972 as compared with 2,057 and 15,226 in fiscal year 1971. Of the 2,175 wounded, 1,057 were returned to duty without requiring hospitalization.

Total Army battle casualties in killed and wounded from January 1, 1961, to June 30, 1972, were 30,435 and 201,161 respectively.

As of June 30, 1971, 276 Army personnel were missing in action in Southeast Asia, with 62 known to have been captured. On June 30, 1972, 258 were missing in action and 83 were known to be in enemy hands.

During fiscal year 1972, the primary responsibility for offensive ground combat operations in South Vietnam was assumed by the armed forces of the Republic of Vietnam. The main burden of dealing with North Vietnamese aggression lay with the South Vietnamese. Remaining U.S. Army forces were engaged in defending U.S. installations, providing aviation support to South Vietnamese armed forces, and carrying out advisory functions.

On March 30, 1972, the North Vietnamese Army launched a major offensive in three separate regions of South Vietnam. Equipped with hundreds of tanks, massive artillery support, and a wide range of modern weapons systems, they threatened the very existence of the Republic of Vietnam. To continue the safe withdrawal of American forces from Vietnam and to respond to this North Vietnamese aggression, it was necessary to augment U.S. air and naval forces and provide the South Vietnamese with additional equipment and logistical support. These actions, in concert with a stepped-up U.S. air campaign within South Vietnam, increased interdiction of enemy supply trails in Laos, renewed bombing in North Vietnam, and a blockade of major North Vietnamese ports, reduced the effect of the enemy invasion. Despite the enemy's effort, only one (Quang Tri) of South Vietnam's forty-four province capitals was lost. U.S. Army forces continued to withdraw during this period, and the Republic of Vietnam's armed forces assumed responsibility for their country's internal security. Supported by U.S. Army advisers, logistical elements, and helicopter transports and gunships, the vast majority of Vietnamese Army units performed well while sustaining heavy losses of personnel and equipment.

To offset these losses and counter the more sophisticated weaponry introduced by North Vietnam, the U.S. Army took extraordinary

measures in three areas to support the Vietnamization of ground combat operations: acceleration of materiel supply under established programs; replacement of abnormal losses from combat actions; and provision of sufficient equipment to the Vietnamese armed forces to counter the enemy threat.

In the first area, materiel that had already been identified and funded and was scheduled for delivery in fiscal year 1973 under an existing improvement and modernization program was called forward and became available at the height of the enemy attack (although the Army Staff had to redistribute materiel, defer planned deliveries to the active and reserve forces, and accelerate maintenance and rebuild programs). At the same time, the scope and intensity of the enemy invasion and the large-scale combat created equipment losses comparable to those associated with large-scale conventional warfare. The requirement to replace artillery, armor, mobility, and communications equipment placed a heavy and unprogramed burden on the Army's logistical system. Expenditure of ammunition above programed levels led to a particularly acute support problem.

Under the equipment augmentation, it was necessary to compensate for North Vietnam's introduction of sophisticated weaponry which only a highly trained army could operate. For the first time in Vietnam, for example, the North Vietnamese used a 130-mm. field gun with a range of seventeen miles. They also introduced a wire-guided antitank missile, a shoulder-fired surface-to-air missile that was effective against helicopters and other slow-flying aircraft, and employed medium tanks on a large scale. Thus the Republic of Vietnam's armed forces had to be upgraded to meet the threat, and some of the equipment released by withdrawing U.S. forces was used: M48A3 tanks with a 90-mm. gun, 175-mm. guns for long-range artillery, UH–1H and CH–47 helicopters, and tube-launched, optically tracked, and wire-guided rockets (TOWs).

During fiscal year 1972, aviation units were redeployed from Vietnam along with other types of U.S. elements. By April 1972, at the height of the North Vietnamese offensive, there were about 25 aviation companies left compared to the high of 144 in 1969. Because of their support role, only a few of the remaining aviation units—principally the air cavalry troops—were engaged in combat. Helicopter employment did not change notably during the offensive, except that the TOW missile was used with the UH–1B aircraft. U.S. Army aviation units provided South Vietnamese and Korean forces with effective support throughout the enemy offensive.

The AH–1G Cobra attack helicopter was the main craft in the single attack helicopter company and the lone aerial artillery battery left in U.S. forces in Vietnam in April 1972. The Cobra is integrated

into helicopter transport companies to provide protective fires during an airmobile assault; it also forms part of air cavalry reconnaissance teams. These teams normally consist of two scout helicopters operating at low altitudes, covered by the protective fires of gunships.

Several examples will illustrate the contribution of armed helicopters. At An Loc on April 12, 1972, the attack helicopters of Battery F, 79th Aerial Field Artillery, met the initial drive of enemy tanks into the city. Using standard aerial rockets and automatic weapons, they knocked out the first six tanks that entered the city. At Hue on May 23, attack helicopters supported aerial scouts north of the My Chanh River. Large numbers of enemy troops were sighted and two scout helicopters were shot down. The gunships covered these aircraft while the occupants were recovered and evacuated to friendly areas. And at Kontum on May 26, 1972, helicopter gunships flew against an enemy tank formation that was penetrating the city, destroying ten of twelve tanks and tracked vehicles.

The Army has in the TOW rocket a highly effective aerial antitank missile. The missile may be employed at ranges up to several thousand meters. Only a small number of helicopters had been equipped by year's end, and some of these were shipped to Vietnam on April 24, 1972. After a short training period in which each pilot gunner fired one missile, these ships were committed at Kontum to meet an expected enemy armor threat. In their first seventy-seven combat launches, they scored sixty-two hits on point targets and destroyed thirty-nine armored vehicles, trucks, and howitzers.

As the American combat role in Vietnam decreased, the advisory effort expanded. The adviser assists his Vietnamese counterpart to identify problems, establish priorities, and organize resources to attain objectives. There are two basic types of advisory efforts in Vietnam—military and pacification. The adviser's goal is to work himself out of a job. Understandably, the rate of reduction of the U.S. advisory contingent was proportionately lower than that of other elements of the American force—in order to support advisory and security efforts. As Vietnamese self-sufficiency improved, selective advisory reductions of about 65 percent were made in both headquarters and field elements.

Field commanders were allowed maximum latitude to determine advisory requirements. Each military region senior adviser, for example, divided his advisory spaces among corps and military region headquarters, divisions, and provinces. Division and senior province advisers in turn tailored their spaces to meet the special requirements of their areas of responsibility. During fiscal year 1972 almost all battalion combat advisory teams were phased out and the number of spaces of regimental combat and district advisory teams was reduced.

District teams have served primarily to advise on means of improving security, with a limited ability to provide developmental assistance. Hence they were less needed as security improved, and there was a gradual shift in the function of Americans at province and district levels from advising to monitoring and reporting upon Vietnamese programs and activities.

As a preliminary to phasing out the district senior adviser program described in previous reports, the six-month tour extension option and related benefits were withdrawn for officers entering the program after November 15, 1971. In other changes in the province and district senior adviser programs, the special fourteen-day family leave incentive was terminated on March 31, 1972, and the province senior adviser training course was reduced to correspond with the eighteen-week district senior adviser course.

During the enemy's spring offensive, military advisers found themselves engaged once again in day-to-day combat operations. Although it was general policy that advisers remain with their counterparts in threatened areas, the senior U.S. commander in each situation was authorized to decide when to evacuate them. In some instances, advisers left only under protest, preferring to face danger in order to lend psychological support and to co-ordinate U.S. tactical air and helicopter support. The fine performance of most Vietnamese battalions and territorial forces after the departure of U.S. advisers demonstrated the success of the advisory feature of the Vietnamization program.

Certain military advisory functions were emphasized throughout fiscal year 1972, including command and control, personnel, logistics, training, communications-electronics, and intelligence. In the pacification area, advisers assisted the Vietnamese in efforts to develop effective and representative local government and in political, economic, security, social development, and resources management areas. By June 1972, U.S. Army adviser strength in Vietnam had been reduced to about 5,000.

From 1966 to the beginning of 1972, the Republic of Korea (ROK) maintained a combat force of some 48,000 men in Vietnam, consisting of two infantry divisions and a marine brigade. During 1971, as a part of the Vietnamization program, Free World Military Assistance Forces shifted their emphasis from combat operations to civic action, nation building, and advisory roles. As Vietnamese forces gradually assumed responsibility for defending Military Region 1, the 2d ROK Marine Brigade returned to Korea between December 1971 and February 1972.

The ROK Capital Division and the ROK 9th Infantry Division continued to operate in Military Region 2, which included most of the provinces of Binh Dinh, Phu Yen, Khanh Hoa, and Ninh Thuan.

They had been most successful in neutralizing or expelling enemy forces from these provinces. It is an indication of their contribution that in June 1972, even after the North Vietnamese spring offensive, these provinces ranged from 76 to 100 percent secure.

In addition to securing major segments of several coastal plain highways in Military Region 2, the ROK divisions conducted operations in April 1972 to secure An Khe pass. This offensive action was conducted concurrently with a systematic transfer of several logistic support functions from U.S. to Vietnamese armed forces and civilian contractors as part of the second phase of Vietnamization. In May 1972, President Chung Hee Park of Korea agreed to retain the two-division force in Vietnam until the end of the year.

During fiscal year 1972 the United States continued to provide most of the military advisers for the Vietnamese community defense and local development program, formerly called the pacification program. This is a military, political, and socioeconomic program managed by the Vietnamese, with American advice and support, to establish security, stabilize and re-establish local government, and foster economic and social progress.

The United States contribution, both advice and support, has been provided by the Office of Civil Operations and Rural Development Support (CORDS), a joint civilian and military organization under the Commander, Military Assistance Command, Vietnam. CORDS advisers, who have served at the national, regional, provincial, and district levels of the Vietnamese government, are being phased out under the Vietnamization program as their counterparts and local situations will permit. The size of this advisory effort was reduced considerably during fiscal year 1972.

On March 1, 1972, a Four-Year Community Defense and Local Development Plan embracing twenty-nine separate programs and growing out of previous pacification efforts was initiated. It is designed to consolidate secure areas and extend security to additional areas, develop and strengthen constitutional government and local administration, and develop the local economy and self-sufficiency so that foreign aid could be reduced.

Community defense and local development operations improved throughout 1971, and as the lunar year ended on February 28, 1972, the Vietnamese people not subjected to the direct impact of military operations were experiencing a higher degree of security and level of economic and social well-being than many had ever known before. The Viet Cong apparatus had been weakened to a point where it no longer posed a serious threat to the government of South Vietnam, and the communists no longer had any hope of gaining control in South

Vietnam through subversion and guerrilla war, a fact clearly acknowledged by the North Vietnamese invasion at the end of March 1972. Indeed, community defense and local development had achieved such success that sympathy and support for the communists were of no major concern in most areas of South Vietnam.

Yet the North Vietnamese invasion of March 1972 had a serious effect on community defense and local development. Activities were completely disrupted in areas of military operations and were severely restricted elsewhere. Viet Cong terrorism increased in the period March–June 1972 as an adjunct to the invasion. Government officials and personnel, police, members of the People's Self-Defense Forces, rural development cadres, teachers, and refugees were favored targets, and government projects in rural areas were often restricted by transportation difficulties. With the central government preoccupied with the major enemy threat and the burden of caring for thousands upon thousands of refugees generated by the enemy assault, it was understandable that there should be a decline in community defense and local development. On the other hand, the communist offensive and associated terrorism turned the people against the communists and solidified their support of the South Vietnamese government. This, together with the government's over-all effectiveness in dealing with the monumental problems raised by the invasion, provided reason for optimism. Despite the setbacks of the last quarter of fiscal year 1972, the community defense and local development structure proved to be sound. If the direct military threat can be eliminated the program will quickly regain momentum.

The U.S. Army continued to contribute extensively to Vietnamization, including improving and modernizing the Republic of Vietnam armed forces and building the nation. Support of a combined Army and regional and popular forces strength of more than 985,000 was a major element of the Vietnamization effort. The most significant change in force structure during the year was the expansion of the Army of the Republic of Vietnam by 45,000 personnel which permitted the activation of a division headquarters, 3 field artillery battalions, 76 two-gun howitzer platoons, an air defense artillery battalion, a medium tank battalion, and several combat service support battalions.

U.S. Army support was substantial. Changes in force structure and improvements in Vietnamese mobility, fire power, and communications—made possible by U.S. support programs—have improved the Vietnamese Army's combat effectiveness and enabled them to defend their country against massive enemy attacks and assume responsibility for all ground combat in the war. U.S. Army support under the

consolidated improvement and modernization program in fiscal year 1972 cost approximately a billion dollars.

In addition to these support programs in which the U.S. Army contribution is of a purely military nature, there were several other significant American contributions with long-range implications for a stable Vietnamese economy. Among them are the Base Depot Upgrade Program, designed to provide the government of South Vietnam with a self-sustaining ability to rebuild and the foundation of a modest industrial base; a Line of Communications Program; and a National Civil Telecommunications System to provide an autonomous civil corporation to operate and maintain major communications facilities to serve all military and civil users.

Logistics

Redeployment and Vietnamization continued to be the chief concerns in the logistics as well as the operational field during fiscal year 1972. As U.S. forces withdrew from Vietnam, concerted efforts were made to assure an orderly phasedown and the effective redistribution of equipment and materiel. At the same time, emphasis was placed upon actions that would help the Vietnamese Army attain logistical self-sufficiency.

Equipment that became available upon the departure of U.S. forces was redistributed to meet confirmed Vietnamese and other military requirements in the Pacific region. Only that which could not be utilized in Vietnam or the Pacific theater was shipped out of the theater, and this amounted to 612,400 short tons during the period. Remaining American stocks in Vietnam were earmarked for residual U.S. forces, use by civilian contractors, or offshore disposal to meet requirements elsewhere. By year's end, the monumental redistribution task that was in prospect at the outset of redeployment planning had been completed.

About 50 percent of all Army-sponsored cargo and 28 percent of the passengers moved during fiscal year 1972 were transported to and from Southeast Asia. The Military Sealift Command moved 5,603,500 measurement tons, and the Military Airlift Command moved 80,900 short tons into the area. Of these totals, 1,980,900 measurement tons were shipped by sea and 43,300 short tons were shipped by air from the continental United States.

About 300,300 passengers were moved from the continental United States to support operations in Southeast Asia, all but 30 of them by air. Over 139,800 were moved within the theater.

The Army used seven ports in South Vietnam during the year: Newport, Qui Nhon, Cam Ranh Bay, Vung Tau, Cat Lai, and Da

Nang, all deep draft ports, and Phan Rang, a shallow draft port. Of these, only Newport and Vung Tau were under Army control at the end of fiscal year 1972; the remainder had been turned over to the Vietnamese. In November and December 1971, a marked increase in ship turnaround time occurred, due primarily to the most severe weather conditions since 1964. While 10 days is normal, the averages for the two months were 17 and 17.7 days respectively. Although little could be done about the weather, action was taken to reduce the number of port calls that ships were required to make in Vietnam. Materiel being returned from Vietnam to the United States was shipped to Oakland, California, or Mobile, Alabama, and other ports were established within the Pacific Command to receive such shipments from Vietnam. Port congestion was not a problem. During the first quarter of the fiscal year, port throughput (discharge and outloading combined) in Army ports in Vietnam averaged 330,000 short tons monthly compared with 503,000 short tons in the previous year. The average decreased steadily in the following quarters as a result of reduced tonnages rather than limitations in handling capacity.

The Army maintained a high state of equipment readiness in the Pacific during the year, even as direct and general support maintenance capabilities were being steadily reduced. Equipment was processed for transfer to the Vietnamese armed forces, and the maintenance backlog for U.S. Army forces was practically eliminated. The Vietnamese Army's capability to provide maintenance support for its own equipment was advanced. The U.S. Army's depot maintenance program for the Pacific totaled $53.1 million, a higher figure than in previous years because of an increase in unserviceable equipment and in the capability to carry out depot level maintenance in the region. The overhaul cycle was shortened, transportation costs reduced, and replacement requirements cut. These factors, combined with favorable labor rates, made depot maintenance in the Pacific more responsive and economical than returning equipment to the continental United States for repair.

Materiel had to be carefully managed across the entire supply system to replace combat losses and enhance the combat capability of the Vietnamese Army. Stocks in South Vietnam were used before those of the Pacific Command were requisitioned, and theater stocks were drawn upon in turn before demands were made upon supply sources in the United States. As the stocks and maintenance capabilities of U.S. Army, Vietnam, progressively declined, offshore supply came increasingly into play. Battlefield recovery and expanded use of a developing Vietnamese Army maintenance and repair capability reduced the demands placed upon the U.S. pipeline.

The major redeployment of U.S. troops from Vietnam and the problems associated with the disposition of their equipment and materiel challenged the Army's management system. Materiel had to be classified, identified as to condition, processed, and distributed in accordance with need. Instructions were prepared by United States Army, Pacific, in conjunction with the Department of the Army and the Army Materiel Command. Materiel was classified as nearly ready for issue, requiring considerable repair, requiring depot maintenance, or not economically repairable. Approximately 19 percent of the equipment was available for immediate release; 67 percent could be repaired within U.S. Army, Vietnam, maintenance facilities. Another 12 percent required extensive repair, and about 1 percent was offered for disposal. Vehicles suffered the highest rate of disposal. Over $42 million of equipment was provided to Vietnamese armed forces in fiscal year 1972, and more than $100 million was shipped to maintenance facilities in the Pacific to be reconditioned and used to meet various requirements including those of Vietnamization.

There are over 500 different major items in the Republic of Vietnam improvement and modernization program, varying from artillery pieces to rifles and tool kits. The requirement to ship or provide materiel at diverse points, on schedule, and often under adverse weather conditions, placed a premium on control and co-ordination for the Army Staff and numerous Defense Department and Army agencies. In some cases, as a Vietnamese Army unit was activated it was designated to assume the equipment and mission of a similar U.S. Army unit. This plan was developed for artillery and engineer units in particular, and it was founded on the assumption that equipment in the hands of an operational unit should be serviceable and suitable for transfer. Only equipment and quantities authorized in tables designed for Vietnamese units were transferred; residual items and some others not considered satisfactory for those units were transferred to U.S. units. From the outset it was intended that equipment made available as a result of U.S. redeployment be used in the Vietnamization program. Materiel lists were revised periodically to keep pace with Vietnamese unit activation schedules. Criteria for transfer and use were developed along with maintenance procedures.

In July 1971, the Army was asked to accelerate delivery, and U.S. Army, Pacific, and U.S. Army, Vietnam, took steps to augment and expedite maintenance units and work. Delivery requirements for various types of equipment were placed upon facilities in Okinawa, Taiwan, and Japan, and depots in the continental United States assumed responsibility for items that could not be provided in the Pacific region. During fiscal year 1972, $338 million in major items was transferred

to the Republic of Vietnam, $124 million by U.S. Army, Vietnam; $70 million by U.S. Army, Pacific; and the balance from the continental United States. Thus the equipment requirements of the Vietnamization program were met with the least cost and disruption to other U.S. Army programs.

As outlined in previous reports, two separate and distinct systems of ammunition supply evolved in Vietnam. The U.S. Army, Vietnam, system supported American and allied forces, while the Vietnamese Army system supported that country's forces. As many of the depots of both systems were collocated, U.S. Army, Pacific, was directed to develop and implement a plan for a combined system. By year's end a single ammunition logistic system had been set up and had progressed so well that by June 1972 U.S. Army, Vietnam, had phased out its ammunition facilities and was being supplied by the Army of the Republic of Vietnam.

In line with the phaseout of the American troop effort, the transfer of operational affairs to indigenous forces, and the requirements of the Vietnamization program, Headquarters, Department of the Army, reviewed Military Assistance Command, Vietnam, proposals concerning tables of organization and equipment for Vietnamese units. A review of the fiscal year 1974 Military Assistance Service Funded Program was rescheduled for early fiscal year 1973 as a result of the North Vietnamese invasion.

Engineer Operations

The engineer force in Vietnam was reduced in fiscal year 1972 from about 20,000 to less than 1,000 personnel. For the first six months of the year, engineer troop effort was distributed for the most part equally between operational support and the lines of communication restoration program. Only about 10 percent was devoted to base construction. During the first four months of 1972, the remaining two engineer groups and ten nondivisional engineer battalions ceased operation and either redeployed from Vietnam or were inactivated. On May 1, 1972, the U.S. Army Engineer Command, Vietnam, was replaced by the U.S. Army Engineer Group, Vietnam, with a strength of approximately 1,000 personnel.

The Lines of Communication Program was the most significant construction activity in Vietnam. Initiated in 1966, it provides for a network of modern, high-speed highways connecting population centers and strategic areas in South Vietnam. The over-all objectives were to support tactical operations by providing routes for the safe movement of materiel and fire support; to accelerate the pacification program by opening up previously inaccessible areas to military forces; and to

stimulate the economic development of the country by promoting the free movement of food and goods from farm and factory to market.

Under the program, 4,076 kilometers of national and interprovincial highways are being improved to provide an all-weather, two-lane, heavy-duty (class 50) highway network extending from the demilitarized zone to the Mekong Delta. On December 15, 1971, the U.S. Army engineer involvement in the program was completed. By June 30, 1972, U.S. troops, both Army engineers and Navy Seabees, had completed 1,759 kilometers of highway restoration. The civilian contractor had completed 989 of the 990 kilometers assigned. The Vietnamese engineers had completed 248 kilometers and were actively working on an additional 337 kilometers of a total of 671 kilometers assigned.

During the year, enemy forces in the Republic of Vietnam continued to employ land mines and booby traps effectively against U.S. and allied personnel and vehicles. Reductions in U.S. ground combat troop strength during the year and the attendant scale-down of field operations, general area surveillance, and combat patrolling by our troops apparently permitted greater freedom of action by the enemy and interdiction of military and civilian highway movement by clandestine mining of roadways. The problem of combating enemy mine warfare continued to require a total and fully integrated effort comprised of: comprehensive analysis of intelligence regarding methods, tactics and trends; intensive countermine training; and development and employment of new and improved mine detection or neutralization equipment. Experience in Vietnam clearly indicated a need for highly trained specialists in all combat units to advise and assist commanders in the development and employment of countermine procedures and in the unit's mine warfare training.

The U.S. Continental Army Command was consequently directed to establish appropriate courses of instruction at Army service schools to train unit mine warfare specialists. To enable the Army to deal more effectively with mine warfare problems in the future and to benefit from experience in Vietnam, an effort was made during the fiscal year to retrieve the mine and countermine warfare records of Headquarters, U.S. Army, Vietnam. These records, along with those of mine warfare experience in other wars collected by the Army Chief of Engineers, are being used to develop and publish an Encyclopedia of Landmine and Countermine Warfare. The encyclopedia will provide comprehensive and complete coverage of the state of the art in mine and countermine warfare, as well as the lessons of related military experience. Distribution of this publication, in fiscal year 1973, is

expected to aid troop unit commanders and personnel engaged in research and development in this field.

Communications

As a result of the national policy to reduce U.S. military troop strength in Southeast Asia, a plan was approved by the Secretary of the Army in March 1970 which called for contractor operation and maintenance of the major fixed communications facilities in Vietnam. This plan was entitled Contractor Operation and Maintenance, Vietnam Engineering and Training Services (COMVETS). A contract was awarded to Federal Electric Corporation (FEC) which had assumed responsibility for a major portion of the system by March 1971.

The FEC contract included an option for extension of the program into other areas of Southeast Asia, and as a further effort to reduce U.S. troop strength in that area, the program was extended into Thailand under the name of Contractor Operation and Maintenance, Thailand Engineering and Training Services (COMTETS).

In August 1971, the Secretary of Defense directed acceleration of the Vietnamization program, which resulted initially in a considerable expansion of the COMVETS program both in operation and maintenance of additional facilities and as an expanded training effort to prepare the Vietnamese for more rapid takeover of the system.

By the end of June 1972, as a result of this contractor effort, the strength of U.S. military communication specialists in Southeast Asia was reduced significantly, and the Vietnamese, through the expanded training program, were well on the way toward complete takeover of the fixed communications system. This system is to remain in Vietnam as the backbone of a telecommunications system serving the military and civil communities on a countrywide basis.

IV. Intelligence and Communications

Intelligence

Beginning with the reorganization of the Office of the Assistant Chief of Staff for Intelligence (OACSI) in July 1971, which reduced the number of directorates from five to four and the number of offices from three to two, Army intelligence activities underwent a series of changes during fiscal year 1972. The principal catalysts for change were reductions in the Army's intelligence and security appropriation and the organization of new Department of Defense agencies which took over a number of intelligence functions that had been the Army's responsibility.

Despite retrenchments, the Army's intelligence effort did break new ground during the year. In December 1971, the Vice Chief of Staff gave partial approval to the United States Army Combat Developments Command (USACDC) contract study GIANT–75 as a conceptual base for the future development of topographic and military geographic intelligence support to the Army in the field. The GIANT–75 concept proposes the centralized compilation and major revision of an annotated thematic data bank of topographic information in the continental United States and provides a base for GIANT–85, a study designed to identify topographic support requirements in the 1975–85 time frame. The GIANT–85 study was forwarded to Headquarters, Department of the Army, by USACDC for review and approval. The future implementation of the GIANT concept will enhance the timeliness and the flexibility of topographic and military geographic intelligence support to deployed forces.

In July 1971, the U.S. Army Intelligence Systems Support Detachment (USAISSD) was formed in response to a Chief of Staff directive instructing Army staff agencies to establish Class II activities in support of automatic data processing (ADP) life cycle actions and Army Management Information Systems objectives. The mission of the USAISSD is to improve ADP field guidance, produce standard software products for Army Intelligence Data Handling Systems (IDHS) worldwide, and develop and operate a Department of the Army IDHS to satisfy intelligence requirements of the Secretary of the Army and the Chief of Staff. The detachment will become operational during fiscal year 1973.

July 1971 also marked the establishment of policies, responsibilities,

and procedures for the Department of the Army Human Resource Intelligence Collection System. The new system, known as The Army HUMINT System, revamped the Army's program for collecting, evaluating, correlating and disseminating intelligence information, activities that are authorized under the National Security Act of 1947, as amended. Care is taken to insure that Department of Defense policies designed to protect individual rights to privacy and dignity (outlined in last year's report) are observed. Congressional cuts in fiscal year 1972 appropriations reduced HUMINT's manpower resources by 16 percent and operational and maintenance support by 13 percent. These decrements resulted in the inactivation of the 531st Military Intelligence Company at Fort George G. Meade, Maryland, and in commensurable reductions in HUMINT capabilities throughout the Army.

The Defense Mapping Agency (DMA) was established on January 1, 1972, following a presidential decision to consolidate Department of Defense mapping, charting, and geodetic operations in a single agency. The goal of consolidation is to obtain optimum efficiency and economy without impairing the legitimate requirements of each service. The DMA became fully operational at the end of fiscal year 1972 following a six-month transition period during which the new agency organized and assumed certain mapping, charting, and geodesy functions previously performed by the services. Generally, the services retained military topographic units and some basic research and development capability, while the remainder of their resources were transferred to the DMA. The Army transferred the U.S. Army Topographic Command, the U.S. Army Engineer School's Department of Topography, and the Inter-American Geodetic Survey to the DMA, but retained its topographic troop units, Engineer topographic laboratories, and staff elements in the OACSI, the Office of the Chief of Engineers, and the Office of the Chief of Research and Development that have mapping, charting, and geodetic responsibilities.

The Director, DMA, is the program manager and co-ordinator of all Department of Defense mapping, charting, and geodesy resources and activities, including review of the execution of all Department of Defense plans, programs, and policies for mapping, charting, and geodesy activities not assigned to the DMA. The Army develops and submits Army mapping, charting, and geodesy requirements to the DMA, assesses the responsiveness of the DMA to the Army's operational needs, and co-ordinates with the DMA all programs and activities related to mapping, charting, and geodesy.

Consolidation of investigative activities at higher levels went a step further with the establishment of the Defense Investigative Service (DIS), which was charged by the Secretary of Defense with responsi-

bility for conducting, directing, and controlling all personnel security investigations for Department of Defense components in the fifty states and Puerto Rico. On May 1, 1972, DIS assumed control of the Department of Defense National Agency Check Center, the Defense Central Index of Investigations, expanded national agency checks, and personnel security investigations. DIS will become fully operational in fiscal year 1973.

The establishment of DIS will cause a sharp reduction in Army responsibilities for conducting personnel security investigations. Approximately 45 percent of the personnel and assets of the United States Army Intelligence Command will be transferred to the new agency. The Army will continue to engage in certain counterintelligence functions, including: complaint and limited investigations stemming from allegations of adverse loyalty and subversive activity not developed during the conduct of personnel security investigations; counterespionage, countersubversion, and countersabotage investigations; personnel security investigation leads for DIS outside that agency's jurisdiction; and certain security services, including counterintelligence surveys and inspections, technical security surveys and inspections, and security education and assistance.

In the matter of security, during late 1970 and early 1971 several incidents of unauthorized disclosure of information that had been classified in the interest of national security prompted the President to initiate action to review the system used to identify, annotate, and safeguard this type of information. Anticipating a change in national policy, the Army acted to improve its own security posture. Early in the fiscal year the Army reviewed and screened each Top Secret clearance held by its military, civilian, consultant, and contractor employees. Top Secret clearances were administratively withdrawn from employees who no longer required access to highly classified information, the result being a reduction in the number of Top Secret clearances from 152,000 to 99,000. Also, OACSI personnel worked closely with officials of the Office of the Secretary of Defense to review and analyze the impact which suggested changes in the classification, declassification, and safeguarding system would have on Army operations.

On March 8, 1972, the President signed Executive Order 11652. The new order, the product of nearly nine months of study and deliberation, established a new system for the classification and declassification of national security information and material. The basic objectives of the new policy were to inform the public, classify less information, declassify information at a more rapid rate, and provide better protection for information that bears on national security interests.

One of the first measurable results of Executive Order 11652 was a reduction in the numbers of officials authorized to classify information

originally. By June 30, 1972, Department of the Army had reduced the number of its officials with original classification authority, in approximate numbers, as follows: Top Secret—79 to 61; Secret—1,933 to 1,307; and Confidential—14,249 to 2,743. OACSI personnel are continuing to work with Office of the Secretary of Defense security personnel in reviewing draft National Security Council directives and in preparing instructions for the implementation of the Executive Order throughout the Department of Defense.

In response to a program announced by the President in 1971 to declassify records created by the federal government during the World War II period, the Adjutant General and the Assistant Chief of Staff, Intelligence, initiated a project employing Army Reserve officers on annual training to review and declassify Army-originated intelligence records of the prewar and World War II periods. Three expert declassification consultants were also engaged to review all World War II records, except the intelligence collections, and to identify records that could be declassified in bulk and by record series, and those items that would require a paper-by-paper review. Army Reserve officers reviewed, on a paper-by-paper basis, the records series and items recommended for declassification by the consultants. By the end of fiscal year 1972 these actions had resulted in the review and declassification of over 8,000 linear feet of records, of which approximately 2,000 linear feet were prewar military intelligence files. The 27,000 linear feet of records involved were reduced by approximately 30 percent.

Executive Order 11652 gave additional impetus to the declassification program by providing that all material would be declassified automatically when 30 years old unless specifically exempted by the head of the issuing department. The National Archives and Records Service, General Services Administration, possesses extensive holdings of prewar and World War II records. The Army's portion is by far the largest and includes extensive collections of intelligence records which will require particular scrutiny.

Communications

While the Ground Mobile Forces Communications Development Concept Paper noted in last year's report has not yet been approved, research and development actions on the ground terminals for tactical satellite communications continued during the year. Prototype terminals were used in numerous tests that successfully demonstrated the capabilities and reliability of satellite communications. Contracts for engineering and service test models of multichannel super high frequency and net radio ultra high frequency terminals will probably be awarded during fiscal year 1974.

In the area of strategic satellite communications, the Defense Satellite Communication System (DSCS) continued to perform well on Phase I satellites, utilizing research and development terminals in an operational mode. Ground terminals were modified and upgraded for use in the initial test of two Phase II satellites, which took place in November 1971; however, the steerable narrow beam antennas failed to function properly, and neither satellite performed at full specification requirements. Progress on ground terminal research and development continued on schedule. The AN/MSC-60 heavy transportable terminal and the AN/MSC-61 medium transportable terminal, the first of a new family of terminals for use in the DSCS, should be in production during fiscal year 1974. Field tests were successfully completed on the AN/URC-61 spread spectrum modems, and preparations were completed for its distribution to the field.

The Joint Tactical Communication (TRI-TAC) Program is designed to fill the gap in tactical communications development caused by the discontinuation of Project Mallard, an international co-operative development program reported upon fully last year. Activity in the TRI-TAC program during fiscal year 1972 centered around a hybrid analog-digital tactical automatic switch (AN-TTC-39), a digital subscriber voice terminal, and associated communications security equipment. The Army was designated development and production procurement agency for the AN/TTC-39. Two switch prototype development contracts were awarded in June 1972. Evaluation of prototype models is scheduled for late 1973. As the program progresses the other services will also be assigned developmental responsibility for various TRI-TAC components. TRI-TAC equipment will be phased into the Army's inventory and will replace equipment currently procured for unilateral Army tactical multichannel communications programs.

An important step in moving from a manually operated, semi-automated telecommunications system to the technologically advanced system that will be required by the later 1970s was taken in October 1971, when Phase I of the Army Telecommunications Program (ATCAP) Concept Plan was approved. ATCAP will permit the Army to consolidate and automate message processing functions and facilities on an area basis, using modern communication and computer technology and existing military communication networks. Facilities scheduled for automation or consolidation will be upgraded to one of four established levels of sophistication—the first level will be a manual facility, while the remaining three will be automatic facilities with differing message processing and handling capabilities. After the plan is implemented, Army telecommunication centers will be able to process narrative and data messages and data bank information through use of

such diverse devices as cathode ray tubes, magnetic tapes, optical character readers, and high-speed page printers and collators. The type and level of services provided, depending upon individual user requirements, will include automatic and semiautomatic routing and message distribution.

Following a trip to Europe by the Secretary of the Army in October 1971, added impetus was given to a program designed to bring television transmissions originating in the United States to USAREUR in order to boost troop morale in Europe. The U.S. Air Force, the Department of Defense executive agent for American Forces Radio and Television service in Europe, had developed a phased plan to provide television coverage in Germany by 1974, but now the project completion is not anticipated until 1975 or later. Because of its interest and concern over troop morale, the Department of the Army agreed to accept program responsibility from the Air Force and procure and install all equipment for the last portion of the project. At the close of the fiscal year, final tasking of major commands for full project execution was awaiting congressional agreement.

When implemented the program will provide a microwave radio transmission system that will transmit television signals originating in the U.S. to sixty-nine television outlets. The signals will then be distributed to approximately 210 troop housing and dependent housing locations in Germany by ultra high frequency radio, cable, or a combination of both. This program will bring American television to some 90,000 Army troops, 45,000 dependents, and 4,000 Army civilian employees at the earliest possible time. It should significantly improve the morale of U.S. soldiers in Germany and their families by providing them a news, information, and entertainment medium comparable to that enjoyed by their stateside counterparts. The project will hopefully alleviate the lack of entertainment in many areas, keep personnel better informed, reduce barracks crime and racial tension, and help reduce drug use that may stem from boredom.

The Joint Tactical Air Control Systems/Tactical Air Defense Systems (TACS/TADS) Interoperability Program seeks to provide joint and unified commanders with longer range detections, more time for threat evaluation and weapon assignment, and quicker response, as well as other increased capabilities that will accrue when the semiautomated tactical systems used by the services are interconnected through digital links to form a composite system. The program is administered by the Navy for the Joint Chiefs of Staff.

During the past three years, emphasis had been placed on developing the documentation needed to insure compatibility of the services' systems and to make certain that the capabilities of each system are

exploited for the common good. The success of this phase of the TACS/TADS program has made it possible to develop digital exchange capabilities for the composite system beyond those initially envisioned. The systems involved in the program, which include the Army Air Defense Command's Control and Coordination System, the Navy's Tactical Air Control System Control and Reporting Center/Post, and the Marine Corp's Air Command and Control System, are all on schedule. Actual testing of the systems' interoperability is scheduled for late in fiscal year 1973.

The Tactical Air Control Systems and Air Defense Systems involved in the TACS/TADS Interoperability Program have common air surveillance, air traffic control, air support, and weapons control capabilities. Individually, the systems are limited in their capabilities by the coverage of their associated radars. By exchanging positional information through data links, the coverage available to commanders at each system is increased to that of the combined systems. Vastly increased coverage facilitates the handling of today's high-speed aircraft and will provide a significant increase in the capabilities for conducting offensive and defensive air operations.

Another program that involves those systems that will support ground and amphibious military operations (GAMO) in the 1980's was established by the Joint Chiefs of Staff to achieve joint interoperability and operational effectiveness of automated tactical command and control systems. The Army is the executive agent for GAMO, and the Assistant Chief of Staff for Communications-Electronics has responsibility for the joint management of the program.

Although still in its conceptual phase, the GAMO program showed progress during the year. A GAMO Management Office was organized within the Electronics Directorate of OACSC–E to provide joint program management services. A Joint Management Committee composed of senior representatives from each service was organized and met monthly to review the program's activities, co-ordinate responses to actions initiated by the GAMO Management Office, and establish program priorities and policies. Also, a co-ordinating committee was formed to assist in developing the Interface Management Plan and the Technical Interface Concepts Plan. These documents will establish the management criteria, define management concepts, and indicate the general technical approach for the execution of the GAMO program.

A concentrated effort to study and improve the security afforded all Army electrical communications, initiated in 1971, led to the publication, in June 1971, of three new regulations that more clearly define and delineate the signal security functions of Army Staff agencies and the major commands. Also, on July 15, 1971, the Office of the Signal

Security Manager was established within the Office of the Assistant Chief of Staff, Force Development. The new ten-man office, which became fully operational in December 1971, provides a focal point for the management of actions associated with improving the Army's signal security posture. In addition to management functions, the office has or is undertaking a thorough review of cryptographic equipment development and procurement plans to insure that crypto needs are in accord with budgetary guidance; an in-depth determination of the status of communications security within the Army by types of communications media; a survey of Army educational programs and facilities to determine the adequacy of individual soldier and unit signal security training; and a review of crypto equipment assets that are available from the drawdown of Army forces in Southeast Asia to assure their reallocation to other Army units in accordance with established priority needs.

The Office of the Signal Security Manager also prepared the first Army Master Plan for Signal Security. The plan provides for integrated direction and over-all management of the Army's efforts to improve its signal security posture, implements signal security policies and the national communications security plans of the U.S. Communications Security Board, and establishes specific objectives that will enhance the combat effectiveness of the Army's tactical forces during the 1973–1978 time frame. The plan also provides for the development and implementation of a comprehensive signal security education program, an integral part of which is the tasking of unit commanders at all levels to improve signal security by increasing the awareness of all personnel to the threat posed by foreign communications intercept activities.

By the end of fiscal year 1972, the Army was already experiencing favorable results due to the actions taken to improve signal security. Procurement plans and objectives are better defined, distribution of security devices and their associated installation kits is well co-ordinated, utilization of communications security equipment has increased, and significant advances have been made in achieving the minimum acceptable security for the command and control of communications links of Army tactical units.

In other communications developments, upgrading and standardization of communications and terminal navigation aid facilities was completed at the first of ninety nontactical Army airfield and heliport installations. The remaining installations will be upgraded during the next three years. The Signal Operation Instruction (SOI) General Procedure is an automated system which has been approved for implementation in all active Army divisions except the 1st Cavalry. This procedure eliminates much of the work load of preparing new SOI's

by placing repetitive data on punch cards, and has the added advantage of enhancing communications security by permitting a more frequent change in SOI editions. Approval was also won for the transfer of certain communications, security, and logistical responsibilities from the U.S. Army Strategic Communications Command (USASTRATCOM) to the U.S. Army Materiel Command (AMC). At the close of the fiscal year USAMC and USASTRATCOM were developing plans for the implementation of the change in responsibilities.

In the area of telecommunications standards, the Military Communications System Tactical Standards Committee (MCSTSC) was organized to develop military communications standards for tactical equipment and systems. The committee has prepared an outline and identified areas in tactical communications where standards will be developed. Also, work progressed on preparing for publication military communication standards that are common to both tactical and strategic communications, and arrangements were completed to transfer responsibility for operating the Environmental Data Collection and Processing Facility from the Bell Aerospace Company to the United States Army Communications-Electronics Computer Applications Agency, effective July 1, 1972.

V. Force Development

In fiscal year 1972 the Army experienced the substantial degree of turbulence that might be expected to accompany withdrawal from war, reduction in strength, transition to volunteer status, and over-all fiscal constraint. Army personnel strength in Vietnam was reduced to 31,900 during the year, with about 166,000 troops redeployed. In the meanwhile, Congress reduced over-all Army man-year (a unit of personnel work equivalent to that expended in one year by one man) authorizations, necessitating a number of early release measures. Accelerated reductions coupled with dwindling use of the draft produced a fiscal year 1972 end strength of 811,000, some 37,000 below programed strength and a net reduction of 313,000 for the year.

The shortfall became one of quality as well as quantity. A trained strength shortage of some 37,000 existed by June 1972. Adverse effect upon readiness was minimized by delaying activations of selected units returning from Vietnam and by not filling fifteen battalions of divisions stationed in the continental United States.

The continued reduction in the active Army structure placed increased reliance upon the Reserve Components in the national security picture. Mission assignments and Reserve Component readiness objectives were adjusted accordingly. The Reserve Components also experienced problems in obtaining personnel under a volunteer force environment and the diminishing threat of the draft. Reserve paid drill strength at the end of the fiscal year was about 623,000 of the 660,000 mandated strength level.

Although there was still some uncertainty at year's end that the Army would meet the zero-draft goal by June 1973—target date for achieving an all-volunteer force—successes late in the 1972 fiscal year evoked optimism at the highest levels. Programs under way and being developed reflected a prudent use of resources and a wide range of options to deal with forward deployments and minor contingencies.

The basic objective of Army force development is to provide balanced, modern, and ready forces capable of conducting sustained combat to execute assigned missions anywhere in the world. In its examination of Army forces, the Congress has given close attention to "combat to support distribution."

Combat to support distribution is a statistical element of force structuring, an important analytical tool, yet not of itself a decisive factor.

Although there is great concern that manpower distribution reflect the highest level of combat capability, the Army focuses upon combat capability rather than manpower distribution as the real measure of force effectiveness.

The Army is a highly mechanized and sophisticated force with aviation, missiles, artillery, tanks, communications, surveillance, and a variety of other kinds of modern hardware. Even as these weapons and other types of systems and equipment have created a greater capability to destroy an enemy than has existed at any previous time in the history of land warfare, they have also created increased support requirements. Although the total manpower associated with an Army division has remained fairly constant, support-type functions have expanded as combat capability has improved. Technological advances have made it possible for fewer troops to deliver more destructive fire power with less exposure and smaller losses. A gradual migration from combat to support functions is in large degree a product of technology. In other words, better weapons, medical care, protective clothing, food, and the like have fortified morale and made the soldier more combat effective. The balance between combat and support distribution is a changing one; the Army's obligation is to refine it and to maintain, on a regular basis, an optimum organization that will insure a combat effective force within available resources. This section of the report reviews some of the elements that go into the equation.

Concepts and Doctrine

In June 1970 the Army initiated a program to develop an improved command and control capability through an Integrated Battlefield Control System (IBCS) concept. The objective is to provide a fully integrated tactical command and control system that links with similar systems of the other military services, one that the Army may use in the field in the post-1980 period. Combat effectiveness is expected to be improved by advances in doctrine, organization, procedures, and communications with the assistance of automatic data processing techniques and equipment.

To control the Army's efforts, the departmental staff developed an Army Tactical Command and Control Master Plan; that part dealing with division-level command and control was published in August 1971. Other parts treating of echelons above the division level and the connections between strategic and tactical command and control systems will be published early in 1974.

Under the direction of the project manager for Army Tactical Data Systems (ARTADS) the Tactical Fire Direction System (TACFIRE), Tactical Operation System (TOS), Air Defense Command and Control

System (Missile Minder), and Air Traffic Management Automated Center (ATMAC) all moved forward during the year. TACFIRE research and development testing was completed, and in April 1972 engineering and service testing was begun. The materiel need for the TOS was approved and the Congress approved the purchase of a militarized testbed. The AN/TSQ–73 Missile Minder proceeded into research and development testing, and the materiel need for the ATMAC was approved.

The Army has long recognized the combat advantage of selectively disrupting or denying enemy forces use of their electrical communications and other electronic systems. In 1967 a study was initiated to emphasize and achieve full integration of all aspects of electronic warfare (EW) into field army combat operations. The product of the study, a report entitled *Electronic Warfare—1975 (EW–75)*, was the most comprehensive effort ever conducted to address measures that would be required for the Army to operate in a hostile EW environment and conduct EW operations against a modern enemy force.

The EW–75 findings and recommendations were reviewed by the Army Electronic Warfare Board (AEWB) in January 1971, following which development of an EW–75 Master Implementation Plan (MIP) was undertaken. The EW–75 study recommendations crossed virtually all major command and staff lines of responsibility and consequently, the MIP was a major effort.

The EW–75 MIP was in final stages of preparation in February 1972 when a new National Security Council directive (NSCID #6) made sweeping changes in organizational and operational responsibilities for signals intelligence (SIGINT) and certain electronic warfare activities. As a result an EW Review Group was established and charged to resolve areas of conflict between the EW–75 plan and NSCID #6. The impact of this latter directive of the National Security Council was sufficient to cause termination of EW–75 MIP actions and reorientation of study efforts. As a direct result, a new study, Concept for SIGINT and ECM (electronic countermeasures) Support to the Field Army (1976–1986), was launched. The approved concept established, for the first time, operational and organizational goals for Army tactical signal intelligence and electronic warfare support and provided the basis for development of an integrated force structure for U.S. Army Security Agency (USASA) tactical support units. At the close of this report period, work continued on resolving and aligning force structure and operational interface details, but the major milestone of establishing a basic tactical SIGINT and ECM support concept to support future force development had been achieved.

The high costs of developing and producing new weapons systems

in an era of inflation and cost overruns prompted the Department of Defense to emphasize the "fly before you buy" policy, whose objective is to insure that a new system is thoroughly tested before large sums of money are committed to it. Throughout 1971 the Deputy Secretary of Defense, in a series of policy memoranda to the services, defined operational test and evaluation to prove a system's military worth, directed that it be performed by an agency separate and distinct from the developing command, and directed that there be an operational test and evaluation office, with a clear identification, to provide staff assistance and a headquarters focal point for the organizational test and evaluation agency.

Tests are begun early in the development process and continue throughout the life of a new system. Assessments are made by operational personnel—soldiers of the type and with qualifications similar to those who will use the system—in a simulated combat environment. The purpose is to determine, at major decision points in the developmental and acquisition processes, the military utility of a system, its expected operational effectiveness, its operational suitability, the need for modification, if any, and the doctrine and tactics for system deployment.

The Army responded to the Department of Defense directives by designating the Combat Developments Command as the Army's independent operational test and evaluation agency; the Office of the Assistant Chief of Staff for Force Development was identified as the staff element with a clear operational test and evaluation function. Work was begun on changing acquisition procedures to conform to the new direction. Existing plans and projects were reviewed to insure that the new procedures were phased into their operational development and testing as soon as possible.

Development and testing of divisional organization is a continuing activity in military establishments, and there were advances in this field during the year. Activity centered upon the 1st Cavalry Division, a unit that has been used over the course of several generations to test advanced organizational structures. A horse cavalry division up to the 1940s, it was changed to the infantry configuration for service in World War II and later Korea; again in 1965 the division pioneered the airmobile concept and served in Vietnam in that configuration. On May 5, 1971, the division was reorganized at Fort Hood, Texas, with the designation of 1st Cavalry Division (TRICAP). The "triple capable" organization is an experimental division composed of an armored brigade, an airmobile brigade, an air cavalry combat brigade, and a division base. Two programs were established to evaluate the division concept and the air cavalry combat brigade; on-the-scene testing is being conducted under the Modern Army Selected Systems Test, Evaluation,

and Review (MASSTER). The purpose is to adapt and apply highly successful airmobility experience in Vietnam to the more sophisticated battlefield environments that will evolve in the future.

In August 1971, the Air Cavalry Combat Brigade test was launched with a test of an Air Cavalry Attack Platoon (ACCB 1). The operational use, capability, and effectiveness of the platoon in a continuous day and night operational environment was tested, with emphasis on the operational mix of the platoon, but with attention also being given to organization, tactics, command and control, and logistical requirements and techniques. In February 1972, the attack helicopter squadron was evaluated, emphasizing squadron and troop organization, as well as command and control, intelligence, logistics, and use of airmobile infantry. Doctrine, tactics, and techniques were examined, including the ability of the squadron to mass forces, sustain an attack, and evade or suppress air defense artillery weapons.

In a larger context of the TRICAP test program, the operational effectiveness of variously tailored company teams comprising a battalion task force was investigated; employment of air cavalry and attack helicopters with company-sized armor, mechanized, and airmobile elements was emphasized, assuming continuous day and night operations in a European mid-intensity warfare environment.

Based upon these tests and related studies and war games, the TRICAP division evaluation is scheduled to be completed in fiscal year 1973. Tests of an entire attack helicopter squadron and of the air cavalry attack platoon will be continued during the coming two fiscal years.

The Volunteer Army

With the zero-draft target date (July 1, 1973) rapidly approaching, the Army prosecuted the volunteer force effort through fiscal year 1972 in numerous actions designed to strengthen professionalism, enhance Army life, and improve the accession system. In August 1971, the Chief of Staff approved a totally new and comprehensive master program for the Modern Volunteer Army, reaffirming the Army's commitment, establishing objectives, and outlining approaches and attitudes in the effort to achieve a competent fighting force that would attract qualified volunteers.

Under the continuing guidance of the Special Assistant for the Modern Volunteer Army (SAMVA), the Army sought new ways to strengthen professionalism by building incentives to service. Efforts were expanded to return soldiers to their assigned military duties by providing civilian labor to handle nonmilitary duties. A Combat Arms Training Board was formed to revitalize training. A Noncommissioned Officer

Education System was developed to give attention to the professional education of noncommissioned officers at key stages in their advancement. There were improvements in basic Army leadership: improved command stability, upgraded leadership instruction, and changes in the personnel management system through which officers could be identified, developed, and utilized within command and specialty fields that offered opportunities for advancement comparable to general service assignments. In January of 1972 the Chief of Staff stressed once again the importance of military professionalism.

Significant advances were made in actions to remove from Army life those sources of dissatisfaction that were deterrents to service. The 1972 budget included substantial increases in family housing construction, modernization, furniture, and appliances. Actions were under way to improve health care for soldiers and dependents, to make retail facilities more customer oriented, and to improve and consolidate reception and in–out processing services. Special services programs were also being expanded to provide a full range of activities in comprehensive, modern facilities serviced by conveniently scheduled transportation.

Programs were being implemented which would ultimately provide soldiers with a standard of living relatively comparable to that available to young people in other careers. Barracks improvements were almost completed by year's end at Fort Benning, Georgia, and Fort Carson, Colorado, and were under way at more than thirty installations around the world. Almost 370,000 items of new barracks furniture had been delivered. A comprehensive Army Housing Program was approved to modernize troop living quarters, with partitioning for permanent barracks and replacement of temporary buildings over a five-year period. New barracks designs were approved in which, clustered around a small lounge, are four or eight 270-square foot sleeping rooms plus bath, to be occupied by one, two, or three enlisted personnel, depending upon grade.

Congress responded favorably to the need for substantial pay increases for enlisted personnel with less than two years of service. In September 1971, the President signed into law a bill doubling, for example, the entry level basic pay of the private (E–1) effective November 14, 1971. Now that a competitive level had been reached, emphasis turned to measures to attract and retain service members with special qualifications and skills. In June 1972, the Department of Defense took the first step, authorizing the Army to pay a $1,500 bonus for a four-year combat arms enlistment.

Project VOLAR, the Modern Volunteer Army field experiment, was expanded on July 1, 1971, from four to thirteen installations in the United States and from one to three oversea commands. As in fiscal

year 1971, VOLAR was to test and develop, under local conditions, certain ideas and approaches that would strengthen professionalism and improve Army life, and to concentrate resources in areas critical to combat arms accession and retention. Although complete evaluation was not possible by year's end, early indications showed favorable acceptance and response, positive advances in attitude toward the Army and in re-enlistment intention, and high potential for continuing improvement.

To achieve a higher level of new enlistees and re-enlistees, the main effort was centered upon strengthening professionalism and enhancing Army life. To capitalize on improvements in these areas and to insure the proper mix of the quality and kind of volunteers the Army mission requires, the accession system was being modernized. As the Modern Volunteer Army Program was getting under way, enlistments in infantry, armor, and field artillery were averaging 300 a month. After extensive printed advertising, substantial increases in the recruiter force and in recruiting stations, and initiation of new and attractive enlistment options, combat arms enlistments jumped to almost 39,000 in fiscal year 1972 compared with less than 10,000 in the previous year. Overall male enlistments and the number of true volunteers jumped as well. Yet these successes were still short of requirements.

Opportunities for women in the Army received increased attention in fiscal year 1972. Military occupational specialties for female personnel were expanded, and the Reserve Components took steps to increase female participation in their troop unit programs.

Reserve Component manning continued to receive Department of the Army attention during the year. Under active Army and Reserve Component recruiting programs, career counselors were placed at thirty-two continental U.S. installations and one in Hawaii. Through their efforts, 29,000 individuals were assigned to Reserve Component units. In January 1972, three-year Regular Army enlisted personnel were offered discharges up to twelve months ahead of schedule if they would join a Reserve Component.

As the year ended the Special Assistant for the Modern Volunteer Army had completed the principal tasks assigned to him by the Secretary of the Army and the Chief of Staff. Although all Modern Volunteer Army objectives had not been achieved, major steps had been taken to reduce the Army's reliance on the draft, and it became appropriate to move development and implementation into the normal structure of the departmental staff. Thus the central responsibility for the MVA program was assigned to the Deputy Chief of Staff for Personnel, and the Office of the Special Assistant for the Modern Volunteer Army was terminated on June 30, 1972.

Training and Schooling

The Army's trained strength at the end of fiscal year 1972 fell 36,300 short of the 774,600 target figure, although it varied during the year from a 28,200 overstrength to a 36,800 understrength. The central reason for the large terminal deficit was a congressionally directed manpower cut that required a 50,000 man-year reduction during the last half of the fiscal year.

In August 1971 the Commanding General of the Continental Army Command, at the request of the Chief of Staff, established a Board for Dynamic Training to link combat arms training managers to the Army's training establishment. The Chief of Staff responded to a board recommendation by establishing the U.S. Army Combat Arms Training Board (CATB) on December 17, 1971, to stimulate the development and dissemination to combat arms units of improved techniques; expedite the development of information channels between combat arms training managers and service schools; publish and disseminate informal training literature on promising techniques; monitor combat arms schools' instructional material tailored to unit needs; determine training device requirements; monitor and sponsor research studies and tests to improve training; and expedite and monitor the development of improved military occupational specialty tests in selected subject areas.

The Army has a Race Relations Education Program that is designed to develop in all personnel an understanding of the basic factors in race relations, the causes of racial tension, and ways to foster racial harmony. Race relations instruction is given in basic training, in the service school establishment, in unit instructional programs, and in orientations for leaders at all levels. (See Chapter 6 for additional material on race relations.)

In basic training and in the service schools, race relations is a specified subject, normally presented in a four-hour block. In recent months this education has been emphasized in the service schools, especially at the Command and General Staff College and the Army War College. It is intended that every unit in the Army have a continuing race relations education program using curricula and materials developed by the Defense Race Relations Institute. It is an Army goal to have instructor teams—one officer and one NCO of majority and minority representation—trained by the institute, in every brigade or equivalent sized unit in the Army. A Senior Commanders Orientation Course is conducted at Fort Knox, Kentucky, for battalion and brigade commanders, and orientation packages are being developed for field and company grade officers and noncommissioned officers for distribution in January 1973.

The Noncommissioned Officer Education System (NCOES) is a

three-level progressive program for the professional development of career NCO's—basic, advanced, and senior. It is patterned after officer career development training and its objectives are to increase the quality of the noncommissioned officer corps, provide enlisted personnel with opportunities for progressive development, enhance career attractiveness, and provide the Army with highly trained NCO's to fill positions of increased responsibility. Selected basic courses were operating in fiscal year 1972, and advanced level courses were started in the last half of the year; the senior level course will begin in January 1973.

The Army's Reserve Officer Training (ROTC) Program has emerged from a period of disfavor, occasioned by the Vietnam War and antimilitary sentiment, as a stronger and more viable program. The attention focused upon ROTC led students, faculties, college administrations, and the public to assess the importance of the college-based program to the Army and the nation. There was a drop in anti-ROTC incidents of about 30 percent in fiscal year 1972 over the previous year, and no institution that hosts Senior ROTC requested disestablishment in the reporting period. Indeed, nine new units were established, bringing the total to 294, the highest number of units since ROTC was established in 1916.

ROTC enrollments dropped 32 percent in the year, a decrease attributable in large measure to the conversion of training from mandatory to voluntary status at sixteen institutions. These conversions have been taking place at a fairly steady rate for several years as a part of an evolution in ROTC to meet changes in modern education; the unpopularity of the Vietnam War was also a contributing factor. Excellent legislative support in doubling subsistence and increasing scholarships will help to reverse the enrollment trend. The results of minority recruiting were particularly encouraging. From the 1970–71 to the 1971–72 school year, black participation in ROTC increased from 7.7 to 10.8 percent. This compares quite favorably with the 6.7 percent of blacks in the American college population and the 11.2 percent in the national population.

In March 1972 it was decided to enroll women in the senior program on a test basis at ten ROTC institutions. Field reports indicate that the program is being well received.

Officer production from ROTC met the active Army's requirements during fiscal year 1972, and projections indicate that this will continue.

In sum, there is growing optimism over the ROTC program after a difficult period, and a general conviction that ROTC will continue to provide the high caliber officers needed to lead the Army's volunteer soldiers both in the Reserve forces and in the active Army.

Organization and Equipment

The Office of the Project Manager for Reorganization was established on April 24, 1973, in the Office of the Chief of Staff to manage a series of plans for major reorganization and realignment actions to modernize, reorient, and streamline the Army's organization within the continental United States. Although improved efficiency was the main purpose of the realignments, the effort was designed to improve readiness, training, the materiel and equipment acquisition process, and the quality and responsiveness of management.

In 1969 the Army launched an Equipment Survey Program to provide site reviews of equipment authorizations of active Army Table of Distribution and Allowance (TDA) units. The primary objectives are to insure that equipment authorizations are fully justified by mission requirements, that excess equipment is identified and returned to the supply system, and that obsolete items are replaced. Trial surveys were conducted in 1970 to refine methodology, and as fiscal year 1972 opened the program was implemented worldwide. Installation commanders were given the opportunity to conduct surveys to correct their own authorization documents. In the light of the acquisition costs of equipment authorizations that were changed by this program as of July 1, 1972, over $730 million worth of changes had been made and a net reduction of $180 million in authorizations had been achieved. In fiscal year 1973 major command teams will begin to verify installation surveys, and the departmental team will survey field operating agencies of the headquarters staff.

The Army's authorization document system (TAADS) is under constant review and evolution. Generally, the system is designed to consolidate and computerize resource management information to include personnel and equipment requirements. It serves for both the active Army and Reserve Component organizations. Development of a new system called Vertical TAADS, which will expedite document processing, continued during fiscal year 1972 under the proponency of the Assistant Chief of Staff for Force Development. Automatic data processing development is being handled by the U.S. Army Computer Systems Command and the U.S. Army Management Systems Support Agency.

In the area of Tables of Organization and Equipment (TOE), major emphasis was placed during the year on completion of the airborne division TOE and continuing development of nondivisional tables. Corps and field army headquarters TOE were completed. The H-series is presently being used by major commands to prepare authorization documents; in fiscal year 1972, worldwide unit conversion to the H-series was initiated.

Systems Developments

On July 15, 1969, the Secretary of the Army issued a charter for a surveillance, target acquisition, and night observation (STANO) systems manager to co-ordinate all Army battlefield surveillance and reconnaissance activities. As part of the STANO program, a Modern Army Selected Systems Test, Evaluation and Review (MASSTER) facility was organized. In February 1971 the scope of the system manager's responsibility was expanded to embrace STANO, the Integrated Battlefield Control System, the triple capability (TRICAP) project, and MASSTER. The over-all management framework was designated the Modern Army Selected Systems (MASS) Management Structure. The STANO system manager was transferred from the Office of the Chief of Staff and assigned to the Office of the Assistant Chief of Staff for Force Development as Director of Doctrine, Evaluation and Command Systems. The directorate manages MASS activities and the functions of Army doctrine, test and evaluation, electronic warfare, and tactical communications; the MASS activities include STANO, tactical command and control systems, and test priorities and scheduling. STANO management capabilities within the major staff agencies and commands now provide much of the continuing direction, the lack of which initially required a STANO system manager.

Since early 1969, when an over-all reassessment of ballistic missile defense was conducted with the purpose of providing a modified, phased deployment concept with multiple objectives, an annual review of the Safeguard System has been taking place.

Under the new approach for such measured deployment, this review of the Safeguard program would gauge the need for its continuation or expansion, depending upon the threat, technical system advancements, and progress in reaching a Strategic Arms Limitation agreement, so as to "insure that we are doing as much as necessary but no more than required by the threat existing at that time."

In February 1972, following the third annual review, the Secretary of Defense presented the principal findings concerning the strategic threat and the technical progress of the Safeguard program. He concluded that the Soviet threat had continued to evolve, both numerically and technologically, over the past three years; the Soviets had initiated construction of new silo designs which implied that new or modified missiles might be deployed; and missile launching submarine production continued at a high rate, indicating that the Soviet Union could achieve parity with the United States by the end of 1973. Development of a new long-range missile was also proceeding.

Parallel to this, the Peoples Republic of China continued to develop its nuclear capabilities, and there was evidence that it had flight-tested

a possible intercontinental ballistic missile in 1971 and could have a small operational force as early as 1975.

Progress in development of the Safeguard System during the year was exceptional; no technical problem affected a decision to proceed with deployment. The two-phase system test program began at Meck Island in the spring of 1970, and as of June 30, 1972, 28 tests had been conducted; of these, 24 were successful, 2 partially successful, and 2 unsuccessful.

The first phase of the system test program comprised 16 tests and was completed in the fall of 1971. This phase verified basic system design concepts and demonstrated system level integration of hardware subsystems, while evaluating software programs to be used later. Test results were 12 successful, 2 partially successful, and 2 unsuccessful.

The second phase of the Safeguard test program, which contained about 40 planned missions, began in the fall of 1971. As of June 30, 1972, 12 tests, all successful, had been conducted. These included both Spartan and Sprint intercepts of target re-entry vehicles launched by intercontinental ballistic missile and sea-launched ballistic missile type boosters.

Prior to May 26, 1972, planning for the Safeguard program had been directed toward a twelve-site deployment. Of these twelve sites, Congress had approved full deployment of two sites (Grand Forks, North Dakota, and Malmstrom, Montana) and had authorized advanced preparation of two others (Whiteman, Missouri, and Warren, Wyoming).

Construction on the first two Safeguard sites at Grand Forks and Malmstrom Air Force Bases had proceeded well. As of June 30, 1972, at Grand Forks the installation was 88 percent complete over-all, and at Malmstrom about 12 percent complete. Production of the operational Spartan and Sprint missiles to be deployed was under way.

Even though deployment was restricted to only four of the initially planned twelve sites, the Safeguard System appeared to have a significant effect on the Strategic Arms Limitation (SALT) negotiations before May 1972. Without the defense offered by Safeguard, the Soviet offensive momentum would be unconstrained within the foreseeable future and would provide no hope for reaching an agreement to limit offensive and defensive weapons. Under such climate, the Strategic Arms Limitation negotiations proceeded throughout most of fiscal year 1972, culminating in a meaningful defensive arms agreement a month before the close of the year.

The proposal to continue with a moderate deployment was announced early in 1971 by the Secretary of Defense and recommended to Congress. It provided for continued construction at the Grand Forks,

North Dakota, and Malmstrom, Montana, complexes; beginning construction at the site of Whiteman AFB, Missouri, as authorized in the fiscal year 1971 budget; and initial steps toward deployment of a fourth site at either Warren AFB, Wyoming, or in the Washington, D.C., area. In November 1971, Congress authorized continuance of the deployment at Grand Forks and Malmstrom. Also authorized was advanced preparation at the third site, Whiteman, and the fourth site, Warren, for 1972. No authorization was given for the Washington, D.C., area beyond study of component configuration for a National Command Authorities (NCA) defense system.

On February 17, 1972, the Secretary of Defense outlined the fiscal year 1973 Safeguard program being presented to the Congress. The Army was to proceed with the planned deployment at the four Minuteman ICBM sites; continue with area defense research and development under Safeguard and the advanced ballistic missile defense program; initiate advanced preparation for defense of the NCA at Washington, D.C.; and continue with the site defense program. While the Congress was considering the fiscal year 1973 Safeguard program, President Nixon visited Moscow and on May 26, 1972, the Treaty on Limitations of Antiballistic Missiles (ABM Treaty) between the United States and the Soviet Union was signed. When the fiscal year 1973 budget was prepared, the outcome of SALT was not yet known, and thus the problem of funding both the ongoing Safeguard deployment program and the site defense research and development program had to be resolved. As a result, the site defense schedule was deliberately slowed, holding the fiscal year 1973 fund request to a minimum needed for continued deployment. With the curtailment of the Safeguard program under the ABM Treaty, the Secretary of Defense proposed that the site defense program be brought back to a normal schedule which would provide for earlier availability of developmental hardware, earlier development of software, and earlier test and demonstration.

By 1970, it was evident that, with continued qualitative improvements in Soviet technology, the threat to the Minuteman force in the last half of the 1970s might grow to a level beyond the capabilities of Safeguard defense. For this reason, in 1971 the Secretary of Defense tasked the Army to initiate a prototype demonstration program for site defense (then called Hardsite) as a hedge against the need to deploy responsively a strategically significant terminal defense of U.S. ICBM retaliatory forces. Each module of the site defense system will use a modified Safeguard Sprint interceptor; the radar, when compared to the missile site radar, will be smaller; and the data processor will be an adaptation of a commercial data processor.

The Secretary of the Army assigned the site defense mission to the

Safeguard System Manager. A system engineering and technical assistance contractor was competitively selected, and a prime contract for the prototype demonstration program was awarded in February 1972.

On the same date that the ABM treaty with the Soviet Union was announced, the Secretary of Defense directed certain immediate implementing actions, with the proviso that no irreversible steps be taken. These included suspension, on May 27, 1972, of construction of the Safeguard site at Malmstrom Air Force Base, Montana; continuation as planned of the Safeguard deployment at Grand Forks Air Force Base, North Dakota; suspension of all future work at the remaining Safeguard site; initiation of planning to cancel the twelve-site Safeguard program and to deploy an ABM defense of the National Command Authorities (NCA) at Washington, D.C., within the provisions of the ABM treaty on the fastest reasonable schedule (the configuration of the NCA defense would be selected prior to treaty ratification); suspension of all ABM research and development programs prohibited by the treaty; and beginning preparation for dismantling the Malmstrom site to commence on the date of exchange of instruments of ratification. Because of the ABM Treaty limitations, the fiscal year 1973 Safeguard program was reoriented and in June 1972 a modified program was submitted to Congress. This program called for authorization to continue work at the Safeguard site in North Dakota and to begin advanced preparation (but not construction) for the NCA site.

On June 10, 1972, the President submitted to the Senate the treaty between the United States and the Soviet Union on the Limitation of Antiballistic Missile Systems. Under the terms, each country was limited to two widely separate deployment areas—one for the defense of the national capital, the other for the defense of ICBMs. The provisions of the treaty were subject to ratification by the Senate. As of June 30, this had not yet occurred.

In order to ease the impact of the Safeguard deployment in communities around Grand Forks, North Dakota, and Great Falls, Montana, the fiscal year 1971 Military Construction Authorization Act authorized the Secretary of Defense, under certain circumstances, to supplement community assistance funds available from existing federal programs. The authority subsequently was delegated to the Safeguard System Manager.

Three key determinations had to be made before granting assistance: (1) that there was an immediate and substantial increase in the need for community service or facilities; (2) that the increase in need was a direct result of work in connection with the construction, installation, testing, and operation of the Safeguard System; and (3) that the com-

munity incurred an unfair and excessive financial burden as a result of the increased need.

The fiscal year 1971 Military Construction Appropriation Bill appropriated $11.8 million for such assistance in fiscal year 1971, and an additional $5.2 million was appropriated in the fiscal year 1972 budget; $26.0 million has been requested in fiscal year 1973.

The communities applied for supplemental Safeguard assistance through the existing program of the appropriate federal agency.

As of June 30, 1972, 134 community impact assistance requests, totaling $18,070,136 had been received from nine administering federal departments or agencies. Twenty-nine were under review and 105 had been processed, resulting in the transfer of $8,825,737 in assistance funds to the administering federal departments. The approved projects for Montana amounted to $3,206,310, while those for North Dakota amounted to $5,619,427. All requests which were disapproved failed to meet one or more aspects of the statutory criteria which govern the administration of Safeguard community impact funds.

Congressional supporters pointed throughout the year to the orderly progress of the system's limited deployment and held that it added credibility to the U.S. deterrent. Furthermore, they felt that the Safeguard ballistic missile defense program continued to provide leverage for use during the SALT negotiations, which in fact proved successful in May 1972.

The program nevertheless was revised by Congress at the end of the year. As a result of the SALT agreement, the June 30 amendment to the budget (House Document 92–321) included decreases in the funds requested for Safeguard totaling $705 million for a revised total request for new obligational authority of $890.4 million. This amendment also proposed the use of $60 million of prior year funds for the fiscal year 1973 research and development program.

The review program of $950.4 million ($890.4 million in new obligational authority and the use of prior year funds in the amount of $60 million) included $644.8 million for the continuation of development and deployment at the Grand Forks, North Dakota, site and $245.6 million for the National Command Authority (Washington, D.C.) site.

As a result of a November 1971 review of the system development plan for the SAM–D surface to air missile project, and the completion in February 1972 of advanced development objectives, a contract was signed on March 31, 1972, for engineering development. This will cover design, fabrication, and checkout of the SAM–D's tactical hardware.

Testing and procurement of the improved Hawk missile system's

equipment continued during the year. Reliability demonstration tests conducted at the White Sands Missile Range were highly successful. Production contracts were negotiated and the Continental Army Command started advanced school training for the Hawk at Redstone Arsenal, Alabama, and Fort Bliss, Texas. Production and operational tests and evaluation were begun in May 1972.

The Stinger, a replacement for the Redeye man-portable air defense system, was also approved for entry into engineering development during fiscal year 1972 and system development was under way as the year closed.

The TOW, a tube-launched, optically tracked, wire-command link guided missile, was first deployed to tactical units in late 1970. This heavy antitank and assault weapon has a high reliability and accuracy performance and is capable of knocking out the heaviest known armored vehicle. In 1972 it was deployed to Vietnam to assist in countering the North Vietnamese invasion. That invasion in late March 1972 represented the first introduction by the enemy of significant numbers of tanks. To counter it, the United States sent several aerial antitank systems to Vietnam. The first deployment consisted of two UH–1B Huey helicopters with TOW missiles. These two aircraft, with sixteen flight and maintenance crew members, departed for Vietnam on April 21, 1972. The personnel, who had trained with the TOW and conducted operational tests with the helicopters at Hunter Liggett Military Reservation in California and Fort Lewis in Washington, were placed on sixty days' temporary duty to train U.S. personnel in Vietnam in systems operation.

The TOW missile proved to be a highly successful antitank weapon for aerial delivery. To augment the airborne TOW, the Army also deployed six UH–1C helicopters equipped with the M22 (SS–11 antitank missile) weapons systems, and these arrived in Vietnam on May 6, 1972. A third system, an improved version of the standard 2.75-inch Folding Fin Aerial Rocket (FFAR) with a dual purpose warhead was also deployed to Vietnam; it is fired from the UH-1C/M and AH–1G Cobra and contains a shaped charge for armor penetration in addition to the normal high explosive and fragmenting antipersonnel steel case. The FFAR was initially employed at An Loc and in the Quang Tri area and accounted for fifteen tanks by the end of June. The UH-1B/TOW helicopters were employed, with exceptional results, in the Kontum–Pleiku area. Of 81 combat firings, 65 were direct hits, and 24 tanks were destroyed. Also hit were bunkers, artillery pieces, a 23-mm. antiaircraft weapon, bridges, a petroleum dump, an ammunition dump, armored personnel carriers, and several trucks. The high point came on May 26 when the UH–1B/TOW destroyed ten of

twelve tanks assaulting Kontum city. The six UH–1M aircraft, operating in the northern military region, accounted for three tanks.

Army Aviation

On April 12, 1972, United States Army pilots, flying the Army's CH–54B "Sky Crane" helicopter, established a number of world aviation records. All flights were observed and monitored by officials of the National Aeronautics Association, representing the Federation Aeronautique Internationale:

Record	Previous Record and Holder	New Record and Pilot
Maximum Altitude	9,682 feet	10,850 feet
15,000 kilogram payload	USSR	CWO-3 Daniel Spivey
Time to climb to 3,000 meters	1 minute 38.32 seconds United States	1 minute 21.9 seconds Major John Henderson
Time to climb to 6,000 meters	3 minutes 32.83 seconds United States	2 minutes 58.8 seconds Major Henderson

The Army's limited ability to acquire targets is presently the single largest deficiency in tactical warfare. A key element in upgrading this capability is the development of an aerial scout helicopter. The technology now exists and the Aerial Scout Program is capitalizing on this by competitively testing significant improvements to the current light observation helicopters (OH–58 and OH–6).

The Army sees the Aerial Scout as a true prototype exercise intended to stimulate industry in developing night vision devices and precise navigation equipment. Prototypes in this program will possess an extended target acquisition range capability by means of a long-range stabilized optical subsystem for the observer, improved position location through use of a computerized navigation system, improved survivability by reducing aural, visual, radar, and infrared signatures, and an improved flight performance capability derived from a larger engine to provide compatibility with attack helicopters. The prime contractors for the aircraft are limited to Bell Helicopter Company and Hughes Tool Company. Texas Instruments Company and Hughes Aircraft Company are under contract to provide improved target acquisition and navigation sensors.

In late April 1972, North Vietnam's armed forces introduced into the fighting in South Vietnam an infrared heat-seeking missile. At the time, U.S. Army aircraft had no infrared countermeasures, nor were any in production. But based upon a research and development project that was in being, the Army was able to go into immediate production. Countermeasure kits were produced and the first were being delivered within forty-five days.

Congressional interest in the Army's attack helicopter program was intense because of interservice implications, program costs, and past technological difficulties. As evidenced by past authorizations and appropriations for the AH–1G Cobra, Congress recognized the Army's requirement for an attack helicopter; however, the need for an advanced attack helicopter such as the AH-56A Cheyenne was questioned.

There were concerns about interservice rivalry for the close air support role and assumed duplication with U.S. Air Force fighter aircraft. This issue, raised by the House Appropriations Committee in 1970, resulted in the Packard Close Air Support Study of 1971. The Army, and the Office of the Secretary of Defense, consider the fighter-bomber and attack helicopter as complementary weapons systems, a position stated in the study.

There are charges that the helicopter is vulnerable to a sophisticated enemy; these originated from previous Air Force testimony which attributed Army tactical success in Vietnam to what was called a "benign environment." While the environment above 1,500 feet could be called permissive, that below 1,500 feet and in battle areas was hostile. This is the air space in which the Army aircraft operate, and it may be compared to mid-intensity conflict. In a mid-intensity conflict, it is expected that hostile fire below 1,500 feet may be two or three times as great as in Vietnam, with correspondingly higher losses. However, the area above 1,500 feet where fixed wing aircraft must operate will become extremely hazardous due to surface-to-air missiles and radar controlled antiaircraft guns. Attack helicopter losses in Vietnam per flying hour and per sortie are less than the losses of jet fighters in South Vietnam. Thus experience in Vietnam indicates that the helicopter has a high probability of surviving in mid-intensity conflict, while there is serious question concerning the survivability of fixed wing aircraft.

The production unit cost of the Cheyenne has caused concern both inside and outside the Army. The advertised low cost of the AX, an aircraft the U.S. Air Force is developing to provide close air support, combined with the existing inventory of Cobras, has frequently been used as a basis for opposing the development of the Cheyenne.

Thus, prior to making a production decision on the Cheyenne, the Army is evaluating its advanced attack helicopter requirement. In addition to the Cheyenne, the capabilities of two industry-sponsored aircraft, the Bell King Cobra and the Sikorsky Blackhawk, are being considered. The former is an outgrowth of Bell's combat-proven AH–1G, the latter a new gunship utilizing Sikorsky's proven dynamics components from the S–61 program. The evaluation is based on both flight test and analytical data. It is scheduled to be completed by July 31,

1972, and will provide the basis for a major program decision prior to submission of the fiscal year 1974 budget.

The availability of AH–1G Cobra aircraft was a prime consideration in the development of force structure and procurement quantities for an advanced attack helicopter. The planned attack helicopter force will be a mix of Cobra, Cobra/TOW, and the advanced attack helicopter. Toward this end, the Army initiated a program to equip 200 Cobra aircraft with the aerial TOW missile system. The Cobra/TOW does not provide the load-carrying and round-the-clock capabilities offered by the advanced attack helicopter. It does represent, however, an efficient utilization of available assets and the earliest opportunity for fielding an antiarmor capability. After the advanced attack helicopter is introduced, the Cobra/TOW will complement the new system and continue in use in a less demanding role.

The funds required to develop the improved AH–1G were released by Congress on July 22, 1971, and the letter initiating the program was released the next day.

In March 1972, a research-development-test-evaluation contract was let to the Bell Helicopter Company for the integration of the TOW missile system on the AH–1G Cobra. Eight prototype systems are to be delivered to the Army; the first integrated AH–1G is to be available in January 1973. In June 1972, plans were made to accelerate the Cobra/TOW production contract award date.

Training simulation provides a capability to train realistically without wear and tear on actual equipment. In recent years, technology has provided a means to simulate actual flights in ground equipment that has the feel and sensation of actual flight. The trainer, which is a reproduction of a cockpit, its controls, and its instrumentation, saves operation and maintenance cost and is not subject to the uncertainties of weather. To capitalize on such training benefits, a program was established to equip the Army on an area basis with simulators. Initial procurement will be tested at the U.S. Army Aviation School at Fort Rucker, Alabama. The first Synthetic Flight Training System (SFTS) is designed for instrument and standardization training, to include emergency procedures.

Current plans call for a three-phase sequential development. The first involves a UH–1H unit with a four-cockpit simulation facility tied to a single master control panel. Next will be a CH–47C Operational Flight Trainer with one cockpit and a visual device. An AH–1G Cobra/TOW simulator will follow.

Ground Equipment

Because of the magnitude of the Army's investment in its wheeled

vehicle fleet and the need to manage it carefully, especially in a period of austere budgets and competing demands, particular attention was centered on it in fiscal year 1972. A Tactical Vehicle Review Board (TVRB) studied the subject and recommended a reduction of more than 17,000 tactical vehicles, a recommendation approved in February 1972. During the same month, a Special Analysis of Wheeled Vehicles (WHEELS) Study Group was formed to reduce the qualitative and quantitative requirements of the tactical vehicle fleet to minimum essential levels; to improve acquisition procedures; consider expanded use of commercial vehicles; and improve the management of the wheeled vehicle fleet. At the end of the first phase of the study in April 1972, the group estimated that wheeled vehicle requirements could be reduced by about 25 percent (100,000 vehicles) inclusive of those reductions already identified by TVRB.

Also during the fiscal year the Army began to procure commercial construction models to improve the equipment of engineer construction organizations. It is anticipated that commercial designs will be less costly than the military designs previously procured, will facilitate procurement and repair parts support, and will permit the Army to take advantage of commercial experience. The first contracts were awarded for 20-ton dump trucks and 1,500-gallon bituminous distributors. Other items will be added on a continuing basis.

In the field of armor vehicles, Congress in December 1971 directed that the XM803 main battle tank program be terminated but appropriated $20 million in fiscal year 1972 funds for a new tank prototype development, stressing that the new tank should be less complex, less sophisticated, and less costly, while taking advantage of technology from the XM803 program. It was further emphasized that it should not be a "warmed-over" XM803. The MBT70/XM803 program, it may be noted, cost $305.1 million, including termination expenses. A main battle tank team was formed in January 1972 under the supervision of the Commander of the U.S. Army Armor Center, Fort Knox, Kentucky, to establish requirements and characteristics for a new main battle tank.

In the Mechanized Infantry Combat Vehicle (MICV) program, transition into engineering development was reviewed, a concept paper was signed, and the Secretary of Defense approved development by one contractor. Requests for contract proposals were released in April 1972; responses are due in September 1972.

In October 1971 a developmental concept paper for the Armored Reconnaissance Scout Vehicle (ARSV) was also approved by the Secretary of Defense and contract proposals released to industry. Six contractors responded, three with track and three with wheel concepts.

In May 1972, contracts were awarded to the FMC Corporation for a tracked vehicle and the Lockheed Corporation for a wheeled vehicle. Each will develop and fabricate four prototype vehicles for competitive testing.

Chemical, Biological, Nuclear Matters

On April 10, 1972, the United States signed the Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction. The convention provides that the parties undertake not to develop, produce, stockpile, acquire, or retain biological agents or toxins of types and in quantities that have no justification for peaceful purposes, as well as weapons, equipment, and means of delivery designed to use such agents for hostile purposes or in armed conflict. This convention codified for the international community of states party to the treaty the unilateral actions previously taken by the United States. It is the first international agreement since World War II to provide for the actual elimination of an entire class of weapons from the arsenals of nations.

It is expected that the safe destruction of biological and toxin stocks in this country will be completed by the end of 1972. All of the stocks at the Pine Bluff Arsenal in Arkansas have already been destroyed; the former biological warfare facility there is now a new national center for research on the adverse effects of chemical substances in man's environment. The former Army biological research facility at Fort Detrick, Maryland, will be a center for cancer research.

Article IX of the convention reaffirms the objective of effective prohibition of chemical weapons and contains an undertaking to continue negotiations with a view to reaching an early agreement on effective measures to eliminate such weapons.

In addition to the disposal of biological agents and weapons at Pine Bluff, anticrop biological agents held at Beale Air Force Base, California, also had to be processed. Disposal began in August 1971 and was completed on March 9, 1972; incinerated residue was disked into the soil under the eyes of representatives of the California Department of Agriculture. A cover crop of millet was planted and the site was cleared and returned to air base control.

Disposal of anticrop biological agents at Rocky Mountain Arsenal, Colorado, initiated on August 2, 1971, continued through the year. By February 26, 1972, deactivation of the agent had been completed without incident and incineration of the inactive residue was in progress. It is anticipated that this will be completed by November 1972.

At the close of fiscal year 1972, a method for disposal of waste from the Fort Detrick anticrop disposal operation had not been de-

termined. The disposal plan had envisioned the use of the sewage disposal system with discharge, following treatment, into the Monocacy River. The State of Maryland and the Metropolitan Washington Council of Governments objected and recommended incineration as employed at Rocky Mountain and Beale. On September 11, 1971, the Environmental Protection Agency advised that their review of the plan indicated that no detrimental effects would result from the planned use of the sewage treatment plant; however, in view of the position taken by area jurisdictions, incineration of the residue was recommended. The Department of the Army approved the procedures as used at the western locations. Materials were deactivated during the last half of the fiscal year, and it was expected that incineration would be completed by November 1972.

In connection with disposal operations, the Army requested a four-year Navy-conducted surveillance program to ascertain whether there were any ecological problems connected with the disposal at sea in August 1970 (Operation Chase) of obsolete chemical munitions. At the half-way point, no traces of nerve gas had been discovered and there was no evidence to indicate deterioration of animal life in the vicinity of the scuttled ship.

Efforts continued through fiscal year 1972 to implement the concept of a combined tactical and nuclear proficiency exercise. In November 1971 a departmental representative attended an initial Army training test at Fort Bragg, North Carolina; in December the Continental Army Command recommended that a concept for a test involving the 155-mm. weapon system be approved. This was done, and in March 1972 CONARC was asked to develop final documentation for the 155-mm. system, develop and test literature and directives for the 8-inch weapon system, and develop, test, and recommend a like concept for field artillery missile and rocket units and engineer demolition munition teams.

Also during the year, an extended effort to improve and consolidate guidance concerning nuclear surety policy and guidance matured with departmental approval of a new regulation prescribing policy and procedures affecting nuclear weapons surety. The new document supersedes six former regulations and consolidates such matters in a single source.

An Atomic Energy Officer Program was established in 1953 to provide a corps of trained officers in functional areas of research and development, operations, doctrine, training, logistics, and effects which pertain to atomic energy. In fiscal year 1972, a consultant board that addresses matters in this field concentrated upon increasing the program membership to meet an objective of 272 officers, and making

the program more attractive to atomic energy personnel and more useful to the Army. A recruiting program brought the membership up to 221, the highest in six years, and the consultant board took a number of actions to refine personnel requirements and make members better informed.

VI. Personnel

Military Personnel

When Congress extended the draft in September 1971, the Army was limited to an average strength in fiscal year 1972—already well under way—of 974,000. This authorization was 50,000 man-years lower than that previously established in the President's fiscal year 1972 budget. This was the first time in recent history that the Army's man-year authorization was reduced after the budget strength had been approved and the operating year was in progress. Prior to the congressional action, the Army was moving toward a fiscal year end-strength on a planned glide path. The President's fiscal year 1973 budget contained a strength phasedown for fiscal year 1972 that was geared to the programed strength for fiscal year 1973; monthly losses were scheduled to exceed gains in smooth increments. To comply with congressional limitations, Army strength in the last half of the year had to be reduced to a level significantly below that authorized in the fiscal year 1972 budget, creating dislocations.

About 86,000 enlisted men and women originally scheduled for release during the last half of the year had to be released in the first half. A levy designed to keep Army forces in Europe at 95 percent strength, combined with the early release, resulted in critical shortages in certain units. Rapid reductions also had an adverse effect on volunteer Army programs and created morale problems that may be with the Army for some time. The imposition of an additional strength reduction through early release was tantamount to an unanticipated and unprogramed loss of soldiers. Prior to the implementation of actions to meet this requirement, alternatives were studied and only those of lesser impact were approved. Because it was difficult at that point to predict the impact these actions would have upon readiness, occupational skill, grade structure, promotion capability, requisitioning, training input, accession, and over-all mission accomplishment, controls were instituted, one of which, for example, was to stop reclassification actions.

Procurement and Management

Within the over-all military personnel picture, the Army made good progress in reducing reliance on the draft to meet manpower requirements, and in moving toward an all-volunteer force. The success was

produced by aggressive, imaginative, and productive programs, including expanded use of advertising for recruitment, attractive enlistment options, and expansion of the recruiting force.

A broad advertising and publicity program was launched to support field recruiting efforts, based upon careful research into the reasons that motivate qualified personnel to enlist in the Army. Campaigns were developed to emphasize career opportunities, unit of choice plans, and other appealing options. Because of congressional opposition to large-scale radio and television advertising, appeals were directed through other channels; billboards, transit ads, and yellow pages and classified advertising were fully exploited. Where $18.6 million had been obligated for advertising in fiscal year 1971, $22.9 was allocated in fiscal year 1972. Every medium except radio and television was increased significantly, and several new programs were added. While it is extremely difficult to attribute specific numbers of enlistments to advertising efforts, it is undoubtedly true that aggressive and innovative advertising is essential to success in recruiting.

Enlistment options were expanded to include all major units worldwide. New options that guarantee an individual a stabilized tour of from twelve to thirty-six months in a unit or area of choice became increasingly popular; only 946 were enlisted in July 1971 in the early stages of the program, whereas more than 10,000 enlisted under the improved and expanded program in June 1972. The most noteworthy accomplishment was the significant increase in combat arms enlistments, which averaged only a few hundred a month in 1971, and rose to 5,411 in June 1972.

During the fiscal year the U.S. Army Recruiting Command was expanded by 3,047 spaces; 537 new recruiting stations were opened and 548 of the existing ones were enlarged. The command was authorized an increase in sedans from 2,523 to 4,718, and by the end of the year all but 233 vehicles were on hand.

The fiscal year saw changes in the use of draftees in Vietnam that neutralized charges that they were shouldering an inequitable share of the fighting burden. When the Vietnam conflict intensified in 1965–66, it had been necessary to increase draft calls to meet expanding manpower requirements. From the buildup of the U.S. force in Vietnam through fiscal year 1972, draftee representation in Vietnam regularly exceeded the draftee proportion of total Army enlisted strength. The use of draftees became a central issue as opposition to U.S. involvement in Vietnam increased on the domestic front.

The draftee portion of Army enlisted strength in Vietnam reached its highest level, 49 percent, in fiscal year 1967, two years before total enlisted strength there reached its peak. By June 1969 the propor-

tion of draftees had already begun to decline even as the percentage of total Army strength was declining:

DRAFTEE PERCENTAGES OF OVER-ALL STRENGTH

YEAR	IN VIETNAM	IN ARMY
1967	49 percent	42 percent
1968	41 percent	39 percent
1969	40 percent	36 percent
1970	39 percent	22 percent
1971	28 percent	28 percent
1972	16 percent	14 percent

In the Vietnam conflict a large share of the combat burden fell upon the draftee. This was the result of several factors: first of all, reserve forces were not called to active duty; secondly, substantial numbers of volunteers enlisted for training and duty in other than combat skills. Thus the draftee was channeled to undersubscribed skills, most of which were combat or combat related in character.

Until late in fiscal year 1972, all personnel were assigned to Vietnam and other areas with no distinction being made between draftees and enlistees. This assignment policy was halted on June 28, 1972, with President Nixon's announcement that, effective immediately, no draftees would be assigned to Vietnam unless they volunteered. Due to the rapidly decreasing and changing structure in Vietnam, the decision did not affect the Army's capability to provide enlisted replacements for Vietnam in the required numbers and with proper skills.

New mental standards under which the Army accepted men from among those disqualified for service prior to October 1, 1966, were continued under the over-all enlisted procurement program through December 31, 1971. The mandatory quota for fiscal year 1972 was terminated and standards were raised on January 1, 1972, to provide better quality for the smaller Army. To this end, accessions from the more marginal categories were limited to not more than 20 percent of total accessions; such a ceiling is required due to a lack of jobs for men of low mental ability, and to keep disciplinary and failure rates as low as possible.

Proficiency pay and the variable re-enlistment bonus continued to play important roles as measures to attract and retain soldiers with critical skills. In fiscal year 1972, $121.9 million was allocated to these programs, $68.3 million of it for proficiency pay. The number of soldiers selected for proficiency pay for superior performance in combat support specialties was raised from 5 to 10 percent, and a new form of proficiency pay, for special duty assignment, gave drill sergeants an increase for proficiency purposes from $50 up to $75 per month. Recruiters and career counselors received proficiency pay of $50 and $30 per month respectively.

As a result of the rapid and sizable withdrawal from Vietnam, career fields which had been marked by critical shortages suddenly became overstrength and could be removed from incentive programs. Aviation was the primary field in this category. To stimulate re-enlistments in combat arms skills, the variable re-enlistment bonus for infantry, armor, and field artillery skills was doubled. Yet expenditures for the variable re-enlistment bonus program in fiscal year 1972, totaling $53.6 million, were well below the $75 million expended in 1971, primarily as a result of the early release program.

A test program under which a $1,500 enlistment bonus was granted for designated combat arms enlisted skills was initiated during the year, the first utilization of an enlistment bonus in many years. To qualify, an enlistee must agree to complete training and serve four years.

With the downturn in the war and the reduction in the over-all size of the armed forces, the problem of absorbing veterans into a peacetime economy received broad attention at the highest levels of government. On June 11, 1971, the President issued a six-point memorandum designating the Secretary of Labor to supervise an intensive effort to place Vietnam-period veterans in jobs or training. The Labor Secretary was asked to work with the Secretary of Defense to expand the Project Transition program (see previous reports) to increase opportunities for job counseling, training, and placement for service members returning to civilian life. United States employment offices, Department of Defense project training sites, the Labor Department, the Department of Health, Education, and Welfare, and the Veterans Administration were enlisted in the campaign.

Under Defense Department auspices, the Army expanded Project Transition along four lines: project services, to include training for 20,000 personnel, were extended to oversea commands; job counseling and civilian vocational training were made available for up to 3,000 personnel participating in the Army Drug Rehabilitation Program; ongoing project training in all fifty states was expanded by 50 percent (from 50,000 to 75,000) per annum; and three skill centers were scheduled to be established in the continental United States to conduct two months of training after separation for personnel without a civilian skill (it was estimated that this plan could attract up to 50,000 participants per year). This latter plan was modified on September 13, 1971 in a Presidential memorandum to the Secretary of Defense, and the Army was directed to provide skill training for 6,000 oversea returnees during fiscal year 1972 at selected installations within the United States, rather than the earlier program for 50,000.

To carry out the expansion the Department of the Army formed a Project Transition task force headed by a major general and super-

vised by the Deputy Chief of Staff for Personnel. Liaison teams of the task force were dispatched to Army headquarters in Europe and the Pacific, while other elements assisted in the formulation and implementation of the over-all plans in the United States.

Skill training in the oversea commands was initially provided through individual referral to military service support units and selected foreign industrial organizations for on-the-job training. In the Pacific region, this type of training was supplemented by training sponsored by American industry and funded through the Manpower Development and Training Act administered by the Department of Health, Education, and Welfare. This training was initiated in February 1972 through a contract with the University of Hawaii, and negotiations for a similar contract with Central Texas College to provide training in Europe were begun in March 1972 and had not been concluded by year's end.

To carry out its part of the over-all program, the Continental Army Command increased its counseling staff and stressed the use of available training opportunities to meet prescribed goals. The command established skill training centers at ten installations to serve personnel returning from overseas. The initial plan had been to program Vietnam returnees into the skill centers beginning in late October 1971. The rapid withdrawal from the war zone made it possible to identify and schedule personnel into established courses.

Involuntary early release policies were begun in September 1971 for draftees assigned in the continental United States, expanded to first-term regular Army in the same area in November, and established Army-wide excepting Vietnam in December. Other early release actions were also begun in December. These had a detrimental impact on Projct Transition in that many individuals were separated on short notice and had no opportunity to participate in training. Also, it was not possible to begin skill center training on schedule. Finally, it became apparent that the earlier prescribed training goals were unrealistic in light of the remaining numbers of eligible personnel. Thus the Army's goals were revised downward from 102,000 to 39,500 personnel to be trained during the year, and skill center courses were opened to returnees from all oversea commands. By June 30, 1972, the Army had exceeded the revised goals, helping to prepare 46,325 personnel for their return to careers in civilian life.

There were a number of other developments in the personnel management field during fiscal year 1972. A program was established to provide Army personnel worldwide with accurate, timely, official information on current and projected Army programs; six briefing teams visited eighty installations and high troop density areas to carry out

this mission, speaking to audiences—predominantly E–5 through E–9 and captain through lieutenant colonel—totaling over 52,000, and obtaining audience reaction to the presentations. The first Department of the Army Worldwide Personnel Conference was held at the Pentagon on January 26–28, 1972, to improve the flow of information to and from the field and improve personnel management within the Army; senior personnel officers of all major Army commands and representatives of the Army Staff attended and the Secretary of the Army and other top officials addressed the conferees. Also in January a Personnel Assistance Center was established in the Office of the Deputy Chief of Staff for Personnel to co-ordinate and expedite information concerning Army personnel policies.

In August 1970 the Chief of Staff directed that a new system of officer personnel management be developed that would increase professional competence through greater regard for specialization and concentrated assignment patterns, ensure equitable opportunity for advancement by providing multiple pathways to success, and improve career satisfaction by allowing an officer more voice in career development to do the jobs he does best. The concept and plan was approved by the Chief of Staff on January 5, 1972, and by the Secretary of the Army on April 13, 1972. The new system is designed to achieve personnel management procedures that will best use an officer's technical skills, aptitudes, interests, and desires. It is applicable to all officers except those of the Army Medical Department, Chaplains Corps, and Judge Advocate General Corps, who will continue to be managed by their respective branches. Under the new system, officers will be qualified in a primary and an alternate specialty; selection of battalion and brigade level troop commanders will be centralized at Department of the Army; and the promotion system will be revised to recognize the Army's requirement for specialists. Although major portions of this new management system will be implemented during 1972 and 1973, it is recognized that the system will have to evolve over the course of a longer period as officers progress within the over-all management framework.

A revised officer evaluation reporting system featuring a thoroughly redesigned report form as well as improved appraisal policies and procedures was developed and field-tested during the year. The revised system will be introduced Army-wide on January 1, 1973. Among its innovations is a requirement that each rated officer be provided with a copy of his evaluation report when it is completed. An improved academic report, recording each officer's accomplishments as a student, will be introduced on July 1, 1973.

There were developments in the field of enlisted personnel manage-

ment during the year. The Army Integrated Management System was established to measure changing items of force requirements and career management. These measurements provide a basis for developing policies to align continually the grade structure with the operational needs of the Army and the career management needs of the individual. The system ties together functional elements of enlisted force management. It is a long-range system that makes it possible to examine force structure requirements against the assets that are available to carry out the Army's assigned tasks. Changes in requirements and assets may be projected and examined as they relate to: the acquisition of personnel through both enlistment and re-enlistment; promotions for deserving personnel; reclassifications for career management and operational purposes; and quantitative and qualitative losses.

The objective of the Army Integrated Management System is to place trained individuals in the proper job at the time required to accomplish the Army mission and to provide an attractive career for enlisted members. Within the over-all system are programs that embrace career management fields, re-enlistment control and qualitative management, reclassification control, promotion, and evaluation.

As the Army's strength has decreased, attention has centered upon efforts to improve the quality of the force. Through the Qualitative Management Program, there is a conscious effort to prevent promotion stagnation as the size of the Army is reduced; each loss (denial of re-enlistment) under the qualitative management program creates a promotion allocation for those remaining—loss of an E–7 would create an E–7, E–6, E–5, and E–4 promotion allocation. To improve the quality of the enlisted force, termination points were established for each enlisted grade and management tools were provided to screen out lesser qualified personnel before re-enlistment eligibility. And professionalism —a major precondition for a volunteer army—is stressed.

The Qualitative Management Program contains three features: separation of personnel whose performance and potential fall below standard; denial of re-enlistment to those not promoted or recommended for promotion after designated points in time; and screening and evaluation to measure professional knowledge, competence, and potential for advancement.

Several changes were also made in the Enlisted Promotion System. Promotion of all senior enlisted personnel was centralized, and that of E–6's and E–5's semicentralized so that eligible personnel competed by qualitative standing determined by point scores. An Enlisted Evaluation System that combines the efficiency report with occupational specialty evaluation test scores to measure over-all performance was expanded in fiscal year 1972 to cover all phases of enlisted personnel

management—promotion, re-enlistment, retention, school selection, and proficiency pay. The enlistee efficiency report was changed to require annual submissions, to extend the minimum rating period to sixty days for E–6 and below and ninety days for E–7 and above, to require comments on professional development and First Sergeant potential, and to measure the effectiveness of equal opportunity programs.

Where the First Sergeant is concerned, a program was initiated in fiscal year 1972 to improve the position as a means of attracting qualified enlisted personnel for this important duty. Among actions taken to upgrade the status and prestige of First Sergeants were: tour stabilization, priority consideration for family housing, early attendance of potential candidates at advance-level noncommissioned officer schools, priority consideration by E–9 and Command Sergeant Major boards for First Sergeant experience, and changes in the Enlisted Evaluation System to require specific comments on First Sergeant potential for all personnel in the E–6 through E–8 grade bracket.

Race Relations and Equal Opportunity

Many long-range plans and projects in the Department of the Army's race relations and equal opportunity programs came to fruition during fiscal year 1972. It was a year of milestones and of preparation of future programs further to insure equality of opportunity and treatment for all military personnel and their dependents without regard to race, color, religion, national origin, or sex.

In June 1972, the Chief of Staff approved a Department of the Army Affirmative Actions Plan embodying 128 major provisions dealing with practices and conditions detrimental to racial harmony and equality in both the active Army and the Reserve Components. Included in the master plan is a requirement that each Army installation, agency, and unit of brigade size or larger develop its own affirmative action plan tailored to local conditions. As with the larger plan, the subordinate ones must include objectives, numerical goals, and timetables to insure steady progress. Reporting and monitoring procedures are under development and the plans are being identified as viable documents to be updated regularly and adapted to new initiatives and procedures.

In January 1972, an Office of Equal Opportunity Program was established at division level within the directorate of Military Personnel Policies of the Office of the Deputy Chief of Staff for Personnel. The division chief serves as Executive Secretary of the Army's Race Relations and Equal Opportunity Program.

Basic principles were approved for that program. It is designed to create a positive atmosphere of racial harmony. Commanders at all levels are made responsible for supporting and attaining program ob-

jectives. The complementary nature of race relations and equal opportunity actions is recognized. The program stresses that the quality of discipline cannot be compromised. It affirms that quality standards for career development must be maintained at all levels commensurate with the mission requirements of the Army and stipulates that the Army will promote and support each soldier's drive for individual and cultural pride.

As of June 30, 1972, the total black percentage in the Army was 15.1 percent, exceeding the national population average estimate by about 4 percent. Black officer and warrant officer content (3.9 and 4.5 percent respectively) is below the population average, while the enlisted proportion—17 percent—is greater. While there has been a significant reduction in the over-all size of the Army since 1968, there has been an increase in the black soldier percentage, notably in the enlisted grades. Other minorities (not including caucasian ethnic categories), it may be noted, represent about 1 percent of enlisted and 0.4 percent of officer strength. Black women officers account for 5.7 percent of total officer strength of the Women's Army Corps, while black enlisted women represent 19.4 percent of the WAC enlisted strength, both above the Army average.

Distribution of black enlisted personnel by grade and percentage of total strength is favorable in all grades except E–9 (7.7 percent) and continues to increase in content.

Black officer distribution reflects increases in senior grades and shortages in junior grades. Of particular note is the increase in black general officers since 1968. The beginning of the fiscal year saw 4 general officers on duty with the active Army; 5 more were on the selected list at the end of the year. The number of full colonels at the end of the fiscal year was 93 compared to 42 on December 31, 1968. The critical nature of the black junior officer shortage is highlighted by the fact that there are more black generals, colonels, and lieutenant colonels than there are black lieutenants.

Race relations training has been expanded and is given to all soldiers in basic training, service schools, and the Army War College. Professional education courses for officers and noncommissioned officers are being developed so that the leadership facets of race relations and equal opportunity may be brought into the very fiber of daily Army life.

The importance attached to race relations education is indicated by the policy that every unit in the Army will have a race relations training program that uses educational materials developed by the Defense Race Relations Institute. Instructors trained in the Institute are used in the Army's unit training program; it is an Army goal to have an Institute-trained instructor team of an officer and an NCO

with majority and minority representation in every brigade or equivalent size unit in the Army. The current requirement is for 376 such teams.

In a special effort to insure that the Army's leadership is fully cognizant of all aspects of the Army's race relations and equal opportunity program, certain actions are being directed to officers and senior noncommissioned officers. One of these is the establishment of a 48-hour Senior Officer's Orientation Course at Fort Knox, Kentucky, which will be attended by selected battalion and brigade commanders prior to joining their units. The course addresses contemporary problems including race relations and equal opportunity. Another is a special race relations orientation packet for field grade and company grade officers and senior noncommissioned officers. These are being prepared by the Infantry School at Fort Benning, Georgia, and will be available for distribution in January 1973.

Among a number of other actions, several research and development studies are ongoing, designed to provide information and techniques to help solve Army racial problem; a Leader's Handbook is in preparation, to provide Army leaders at all levels with guidelines on how to reduce racial tension; emphasis has been continued on actions to insure that post exchanges, libraries, commissaries, service clubs, and other facilities are responsive to the needs of all personnel equally; and commanders were made responsible for insuring that off-post housing and facilities are available to all personnel without discrimination. In the latter connection, effective November 12, 1971, restrictive sanctions imposed by local commanders because of discriminatory housing practices remain in effect for six months from the date of imposition.

As a result of increased emphasis on minority officer procurement, the number of minority group cadets at the United States Military Academy and in Reserve Officer Training Corps and Officer Candidate School programs has expanded. Enrollment of blacks in the Plebe Class at West Point rose from 9 in 1968 to 53 in 1971 and 50 for the 1972–73 school year; the output of black lieutenants from Army Officer Candidate School increased from 2 percent in 1971 to 5 percent in 1972, while 8.5 percent of candidates enrolled as the year ended were black. The Army's goals for minority group personnel in Officer Candidate School is 11 percent in calendar year 1973, 13 percent in 1974, and 15 percent in 1975. Where participation in ROTC is concerned there were also minority group increases, from 7.7 percent in the 1970–71 school year, to 10.8 in 1971–72, with a total of 5,443 black cadets. The program has been enhanced by the increase of ROTC detachments in predominantly black colleges and universities, with an annual increase of two from 12 in 1969 to 18 in 1972. Opening en-

rollment for the 1972–73 school year revealed that 13.7 percent black and 3.7 percent other minority group cadets were participating in the Army ROTC program.

In the last two years, 16 officers out of 547 selected to attend senior service colleges were black.

A program initiated in May 1971 to correct imbalances between hard skill and soft skill military occupational specialties has produced improvements in 137 of 169 selected entry specialties. With respect to minority group officer distribution by occupational specialty, there have been some imbalances, and actions were taken to adjust these, with particular attention to the doctor, lawyer, and similar fields of specialization. Finally, opportunities for women were expanded. The percentage of occupations where women may be utilized was expanded from 40 to 90, and educational opportunities were increased.

It may be seen from the foregoing that considerable attention has been centered upon race relations and equal opportunity throughout the Army. Upper level commitment and support, combined with emphasis on the role of the leader at all levels and a broad program of action, will help resolve existing problems, encourage racial harmony, and contribute to a more effective Army.

Health and Medical Care

The rate of admission to hospital and quarters for active duty Army personnel worldwide during fiscal year 1972 was 356 per 1,000 average strength per year, 18 per thousand more than the 338 reported for fiscal year 1971. The noneffective rate—representing the average daily number of active duty personnel in an excused-from-duty status due to medical causes—was 15.2 per 1,000 average strength as compared with 16.9 in the preceding year. Noneffectiveness due to wounds incurred in action (WIA) declined from the 3.0 level in 1971 to 1.2 in 1972.

The table on page 86 displays admission rates in Vietnam and other areas for diseases and injuries as well as for all causes, along with incidence rates for malaria and certain other conditions which tend to cause a high proportion of noneffectiveness in one or more of the geographical areas.

A serious problem that cuts across the whole society and extends into the military forces is alcohol and drug abuse. On June 17, 1971, the President of the United States brought national attention to bear upon one facet of this problem when he announced a national counteroffensive against drug abuse and directed that the military services participate in the campaign.

Only two weeks before, the Army had established a Directorate of Discipline and Drug Policies within the Army Staff to co-ordinate

Admissions to Hospital and Quarters and Incidence of Selected Conditions
U.S. Army Personnel on Active Duty
Fiscal Year 1972
Rates per 1,000 Average Strength per Year

	Worldwide	CONUS Army Areas	Overseas Areas Total	Europe	Pacific	
					All Areas	Vietnam
Admissions:						
All Causes	356	400	299	204	429	522
Disease	316	360	260	173	377	459
Nonbattle Injury	38	40	35	31	42	47
Wounded in Action	2	—	4	—	10	16
Incidence:						
Malaria	2.71	1.88	3.76	0.21	8.52	13.07
Diarrheal Diseases	20.26	18.07	23.03	10.98	35.04	46.16
Acute Upper Respiratory Infection and Influenza	95.85	135.70	45.28	39.99	42.12	26.85
Skin Diseases, Including Dermatophytosis	9.70	6.18	14.18	2.06	30.08	44.51
Neuropsychiatric Conditions	19.05	20.12	17.70	9.97	27.20	30.95
Hepatitis Viral	5.02	5.33	4.63	2.00	8.20	8.42

actions in this important area, and on the day following the President's announcement the Army began procedures to identify and detoxify heroin users returning from Vietnam. By November 1, 1971, the Army had instituted procedures to screen, treat, and rehabilitate addicted personnel worldwide.

A Department of the Army Alcohol and Drug Abuse Prevention and Control Plan was published on September 3, 1971. It provided subordinate commands with guidance to conduct an intensive program embracing prevention, identification, detoxification, initial treatment, rehabilitation, evaluation, and research. The program derived great impetus from a worldwide alcohol and drug conference conducted in Washington in the same month.

Alcohol and drug abuse prevention requires broad actions along many contributing lines: education, training, regulation, enforcement, recreation, community action, and constant and conscious efforts to provide users or potential users with effective alternatives. A number of formal education and training courses have been conducted, including the Army Medical Department's Alcohol and Drug Education Course, scheduled in four thirteen-day cycles in late 1971 and early 1972; 198 military and civilian personnel were trained as instructional cadres to serve major commands in alcohol and drug education and prevention programs and to conduct similar courses for subordinate commands and installations.

Both military and civilian personnel attended alcohol and drug education courses conducted by the Drug Dependence Institute, New Haven, Connecticut; the Oklahoma University Medical Center, Okla-

homa City; Hayward State College, Hayward, California; and the University of Miami, Coral Gables, Florida.

Drug use is identified through voluntary action on the part of the user, a urinalysis testing program, and other command and police methods. By the close of the fiscal year, of 1,484,573 personnel tested, 36,554 laboratory positives had appeared, a rate of 2.5 percent. A slight downward trend from a worldwide Army high of 2.9 percent in November 1971 to 2.5 percent in June 1972 provided a basis for cautious optimism.

Detoxification includes various procedures for withdrawing addicts from physical dependence or treating acute intoxification. As of June 30, 1972, 28,789 individuals had entered medical facilities for detoxification; of these, 10,428 were evacuated from oversea facilities and admitted to hospitals in the continental United States. Under the exemption program that treats drug abuse with medical rehabilitation rather than with limited response as a legal problem, 23,137 soldiers voluntarily entered treatment; not all required medical detoxification.

Rehabilitation measures are aimed at restoring drug users to full duty status. Within the continental United States, thirty-three hospitals have been designated to receive and provide initial care for drug users evacuated from overseas. Medical facilities, halfway houses, and rap centers are used for transitional and outpatient assistance for those undergoing rehabilitation. Personnel who enter the rehabilitation program are monitored for at least a year or until separation from the Army. Those incapable of or unwilling to respond to genuine in-service rehabilitation efforts within a reasonable period are transferred while still on duty to a Veterans Administration hospital near home prior to separation from the service.

Department of the Army assistance teams and field evaluation teams operating under The Surgeon General's aegis, along with standard required reports, are used to evaluate and improve the control program.

Research in alcohol and drug abuse prevention and control is designed to produce better understanding of the problems involved and to help improve the methods for dealing with them. Research efforts are focused upon both the medical and the behavioral aspects of the problem, and both internal and outside contract capabilities have been employed.

The interest and activity generated by the drug abuse problem inspired parallel attention to the use and abuse of alcohol within the Army. There are indications that problems raised by alcohol abuse have a greater adverse impact upon duty performance than all other drug abuse combined. A survey is to be conducted in fiscal year 1973 to

explore the extent and patterns of the use and abuse of alcohol in the Army.

Vaccines in oral tablet form were given to all basic trainees during the 1971–1972 respiratory disease season to protect them against adenovirus types 4 and 7. There were stability problems with the type 7 vaccine, which appeared gradually to lose much of its potency during refrigerated storage. As a result, the admission rate for acute respiratory disease at basic training installations rose from 292 per 1,000 per year in calendar year 1971 to 354 per 1,000 per year in the first six months of 1972. Much of this was due to the weakened vaccine's inability to control the adenovirus disease. The search continues for a more stable vaccine, and a new formulation is expected to be ready by the winter of 1972.

A new meningococcal vaccine to combat type C, responsible for most of the meningitis in the Army over the past several years, was given for the first time routinely to all incoming recruits. The effect of the vaccine, developed at the Walter Reed Army Institute of Research, may be appreciated by comparing the statistics of the last two years. In fiscal year 1971 there were 249 cases and 13 deaths due to meningitis. In fiscal year 1972 this was reduced to 37 cases and 3 deaths. Research in this field continues, to develop and test vaccines for other types of meningococcal disease.

The Venezuelan Equine Encephalomyelitis epizootic epidemic that occurred for the first time in the United States in the summer of 1971 was confined to Texas as a result of the federally sponsored emergency disease control program. The Department of Defense provided professional and technical services, aircraft, and vaccine to support the program. An attenuated live virus vaccine, developed by the Army Medical Department, was used to vaccinate three million horses, an estimated 95 percent of the horses in the southern tier of nineteen states. The widespread immunity produced in the equine population is regarded as the most effective of the measures used to control the disease. The Department of Defense continues to co-operate with the Department of Agriculture and other federal and state agencies and universities in an extensive surveillance program to detect any possible spread of the disease.

The entire expertise and capability to control exotic diseases cannot be expected to reside within any one federal agency. The combined efforts of several agencies are required to control disease emergencies. This was made apparent once again on March 14, 1972, when another national animal disease emergency was declared, this time an outbreak of Newcastle's disease in poultry in California. In response to a request for assistance from the Department of Agriculture, the Department of

Defense assigned over 200 military personnel to a task force in California, including 40 military veterinarians and approximately 160 noncommissioned officers. Professional and technical assistance was gradually reduced, and assistance is scheduled to be terminated in September 1972. By that time the Department of Agriculture will have had time to develop other resources to continue a program to eradicate the disease. The military veterinarians assisted with inspection, investigation of suspected cases, review of confirmed cases, and quarantine enforcement, while noncommissioned officers were used to supervise vaccination teams throughout the area.

While control of exotic animal diseases is not a mission of the military services, the Department of Defense by agreement stands ready to assist the Department of Agriculture in animal disease emergencies.

During fiscal year 1972 the U.S. Army Dental Corps provided almost six million dental treatments in Army facilities worldwide. This included 235,100 treatments in Southeast Asia. The breakdown of treatment by category of patients was as follows:

Category	Number of Treatments
Army	3,549,903
Navy/Marine	32,476
Air Force	54,042
Dependents	1,835,328
All Others*	498,945

* The "all others" category consists mostly of retired personnel, but included Department of the Army civilians serving overseas or in isolated areas.

An Army Nurse Corps' Clinician Program was established in fiscal year 1972 to add a new dimension to patient care in the Army Medical Department, to help avert an impending shortage of medical officers in the volunteer Army, and to enhance career satisfaction in the Army Nurse Corps.

Nurse clinicians will assume progressively increased responsibility for patient assessment, treatment, teaching, and follow-up care in those less complicated cases which now demand an excessive expenditure of the physician's time. In their established roles, the clinicians will offer to the soldier and his family improved personalized nursing care and services which will contribute to health maintenance, prevention of illness, and continuity of care. They will be utilized in outpatient as well as inpatient areas of Army medical treatment facilities.

The specialized clinical education required to prepare nurses for these new and expanded roles is being provided through three sources: revised existing Army Medical Department courses; development and implementation of new Army Medical Department training courses; and civilian educational programs. This will provide nurses with new skills in each of the nursing specialties (pediatrics, obstetrics-gynecology,

medical-surgical, psychiatry, health, anesthesia, and operating room) and promote increased intra- and inter-disciplinary planning and consultation in meeting the comprehensive health needs of the military community. The graduation of the first class from the three new nurse clinician courses established in fiscal year 1972—ambulatory care, obstetrics-gynecology, and pediatrics—heralded a new dimension in Army nursing. By year's end the graduates were in their new assignments, pioneering the new practice roles. Priority in assignment was given to Class I medical facility outpatient services.

The pediatric nurse clinician is assuming major responsibility in the care of the normal child in the outpatient setting. When indicated, and within guidance established by the pediatrician, the nurse clinician is referring children to physicians, Army health nurses, other health disciplines, and community agencies. The ambulatory care nurse clinicians are functioning within locally established guidelines in the clinical management of selected adult patients with acute minor illnesses or chronic but stabilized health problems. A major goal of their practice is to assist patients and families to accept and assume knowledgeable responsibility for participating in identifying their own health needs and in planning and providing for those needs. In hospitals where family practice physicians are assigned, nurse clinicians and Army health nurses are working with those physicians to provide a family-centered health program.

Psychiatric-mental health nurse clinicians are providing primary care for selected individuals, groups, and families in collaboration with other mental health therapists. In addition to the traditional inpatient care role, nurse clinicians are providing crisis care or consultative mental health services throughout the hospital and are participating in psychiatric day care programs. The obstetric-gynecologic nurse clinician, working within locally established guidelines defined through nurse-physician collaboration, is providing selected diagnostic, therapeutic, health maintenance, education, and counseling services to women requiring obstetrical and gynecological services. They are also involved in making appropriate referrals and co-ordinating the details of care with other health team members and agencies, as well as planning and conducting individual and group conferences to provide education and guidance for health maintenance, family planning, and preparation for childbirth.

Brooke Army Medical Center, Fort Sam Houston, Texas, was chosen as the site for the Army's Physicians' Assistant Program (see the fiscal year 1971 report). This new health assistant is a skilled person qualified by academic and practical training to provide patient services under the supervision and direction of a physician who is responsible for the performance of the assistant.

The first class of sixty students began the eighteen-month training in February 1972. Upon successful completion of the course the candidate will be awarded an Associate of Science degree from Baylor University and will be appointed as a warrant officer. Two classes a year, started six months apart, will graduate approximately 120 physician assistants per year.

Physician assistants will be utilized mainly in three areas: the maneuver battalion, troop clinics, and ambulatory care facilities. In these areas they will provide a primary source of medical care, conduct routine sick call, be available for emergency treatment, and perform other specialized procedures under the direction of the supervisory physician. The first graduates were in their new assignments at year's end, pioneering the new practice roles. Priority for assignment was given to Class I medical facility outpatient services.

The U.S. Army Medical Research and Development Command (USAMRDC) expanded its research program during the year and joined with other government agencies to improve the national environment. The command's primary areas of responsibility include: scientific investigation to determine environmental standards for unique Army pollutants; research on the establishment of standards to enable the direct re-use of treated waste water for drinking and other uses; investigations concerning the health effects of solid waste disposal; pesticides and pesticide container disposal; development of criteria for waste treatment process and pollution control devices to provide protection for health and welfare; and the development of analytical procedures and monitoring techniques to provide for accurate and timely measurement of pollutants emanating from Army activities.

The command's research program was further expanded to establish a drug abuse research effort to provide immediate assistance to deal with drug abuse and alcoholism. The program has three objectives: to identify and diagnose drug abuse; to survey the prevalence and incidence of drug abuse in the Army; and to evaluate medical drug abuse programs embracing identification, prevention, treatment, and rehabilitation.

A noteworthy accomplishment of Army medical research grew out of the command's participation in the massive vaccination program to control the spread of Venezuelan Equine Encephalomyelitis, previously noted. The vaccine was developed by the U.S. Army Medical Research Institute of Infectious Diseases, an element of the USAMRDC. Earlier, the institute had provided about two million doses of the live attenuated virus vaccine, through State Department channels, to Mexico and other Central and South American countries.

On February 19, 1972, the Secretary of Defense authorized an

accelerated health facilities modernization program to replace outmoded and inadequate facilities, some dating back to 1941 or earlier. The Army requirement for total modernization was estimated at $514 million in construction and alteration costs; under the program this would be spread over the five-year period from fiscal year 1974 through 1978.

In the meantime, health facilities construction programing continued at a normal rate of about $40 million per year with the exception of fiscal year 1972, where the allocation was in excess of $112 million due to the inclusion of the Walter Reed General Hospital replacement. The fiscal year 1971 military construction program provided for the relocation and expansion of utilities, construction of interim hospital facilities, and demolition of existing buildings preparatory to construcion of the new Walter Reed facility in Washington, D.C. This work was carried out during fiscal year 1972 and a clear construction site was available as the year closed. The contract was awarded and approval to proceed with the construction of the main hospital building followed. This is a 1,280 bed facility with an estimated cost of $113,-551,000. Also included in the year's programs were the alteration of hospital buildings at Brooke General Hospital, Fort Sam Houston, Texas, a hospital addition at Fort Bragg, North Carolina, and a new dental clinic at Fort Knox, Kentucky.

A number of other medical construction projects were started, well under way, or completed during the year. Three hospitals were completed: Cutler Army Hospital with 116 beds at Fort Devens, Massachusetts; Silas B. Hays Army Hospital with 440 beds at Fort Ord, California, and Moncreif Army Hospital with 440 beds at Fort Jackson, South Carolina. All three included outpatient and specialized clinic and treatment facilities and a small dental facility.

Started during the period were clinic additions to Patterson Army Hospital, Fort Monmouth, New Jersey, and Womack Army Hospital, Fort Bragg, North Carolina. Well in progress as the year closed were: William Beaumont General Hospital, Fort Bliss, Texas; U.S. Army Hospital, Fort Benjamin Harrison, Indiana; U.S. Army General Hospital, Fort Gordon, Georgia; clinic additions to Dewitt Army Hospital, Fort Belvoir, Virginia, Kimbrough Army Hospital, Fort George G. Meade, Maryland, and Dunham Army Hospital, Carlisle, Pennsylvania; and modernization of the 97th General Hospital, Frankfurt, Germany.

Among other medical projects under way during the year were a dental clinic at Fort Polk, Louisiana, a Medical Field Service School at Brooke Army Medical Center, Fort Sam Houston, Texas, a mental hygiene clinic at Fort Leavenworth, Kansas, and the Western Medical Institute of Research, Presidio of San Francisco, California. And finally,

a number of other medical construction projects that were completed were a dental clinic at Fort Lee, Virginia, various community facilities (commissary, post exchange, cafeteria, bank, clothing store, and bowling lanes) at Walter Reed Army Medical Center, at Forest Glen, Maryland, an Optical Laboratory and School, Fitzsimons General Hospital, Denver, Colorado, and a part of the Medical Biological Research Laboratory, Fort Detrick, Maryland.

Housing

Medical projects comprised only one part of the Army's military construction program. Family and troop housing were a major element in an area where shortages represented a long-standing problem. This program was given impetus and dollars when studies conducted for the Modern Volunteer Army disclosed that dissatisfaction over living conditions was one of the main objections to Army life.

The Secretary of Defense, recognizing that bachelor housing criteria had not kept pace with evolving social patterns, issued new criteria that provided for more living space and more privacy. As these improvements increased construction costs, the Congress raised the statutory limitations on barracks and bachelor officer quarters. In consonance with the new criteria for barracks, the Army developed new building designs with emphasis on privacy for the individual. Out of architectural studies evolved designs for a three-man room with bath for enlisted grades E–2 to E–4, a two-man room with bath for grades E–5 to E–6, and a private room with bath for enlisted grades E–7 to E–9.

Adoption of the new criteria had two effects: new barracks could be built to replace the wooden structures of World War II vintage, and existing permanent barracks could be modernized to bring them up to the new standards.

The long-range total requirement for barracks worldwide is estimated to be approximately 536,000 spaces. Of the 315,000 existing permanent barracks spaces, only about 113,000 may be considered adequate. To meet the goals, barracks must be built or completely modernized for about 423,000 men before the end of the decade, a program estimated to cost approximately $1.35 billion.

The deficit in barracks and bachelor housing projected for fiscal year 1973 is shown in the chart on page 94.

To overcome this deficit that existed as of the close of fiscal year 1972, the Army programed $240 million for fiscal year 1974 for new bachelor housing construction, and $148 million for modernization. If the Congress authorizes and funds the program, about a third of the bachelor housing deficiency can be overcome. Continued financial

New Construction	Spaces	Fiscal Year 1973 Budget Dollars Cost (Millions)
Barracks	86,000	$ 587.0
BOQ's	4,542	59.1
Modernization		
Barracks		
U.S.	129,000	322.5
Overseas	43,200	64.9
BOQ's	9,430	18.8
	272,172	$ 1,052.3

support in following years would make it possible to eradicate the deficit late in the 1970s.

In the area of family housing, the Army's long-range objective is to extend eligibility to all married soldiers except trainees when sufficient housing is available. Surveys covering all E–4's were conducted in 1972 to determine family housing requirements as an aid in future housing programing. The family housing program is designed not only to provide adequate quarters either on post or in the civilian community but also to modernize existing housing to meet new standards, maintain existing housing adequately, provide sufficient replacement furniture overseas, and provide government-owned clothes washers and dryers in oversea housing.

In fiscal year 1972 the Army prepared a family housing program for the 1970s that would head toward these goals. A tabulation of key items and the portions allocated to fiscal years 1973 and 1974 and pending approval follows:

Program for the Seventies		Fiscal Year 1973	1974
New Units	33,600 units	4,409 units	6,135 units
Mobile Home Spaces	5,400 spaces	421 spaces	825 spaces
Improvements	$148 million (25 million per year)	$23 million	$28 million
Leases	10,000 level/year	4,122 leases	6,929 leases
Deferred Maintenance	$147 million		
Backlog Reduction	$25 million per year	$12 million	$19 million
Furniture Replacement	$217 (15 million per year)	$16 million	$15 million
Clothes Washers and Dryers	$14 million (Over 3-year period)	$7 million	$5 million

Military Justice, Conduct and Discipline, Legal Affairs

During fiscal year 1972 the Army's absent-without-leave (AWOL) and desertion rates declined from the peaks experienced in both areas in fiscal year 1971. There was a decline of 6 percent in the AWOL rate and 15 percent in the desertion rate from the previous year.

There were several reasons for this improvement. The downturn in the Vietnam War was a significant factor. Better management was exercised in personnel control facilities. Fewer soldiers were sent overseas. And the over-all effects of personnel quality improvement and stabilization were being increasingly felt.

After a year of planning, the Army's Deserter Information Point became operational on January 1, 1972, within the U.S. Army Enlisted Personnel Support Center at Fort Benjamin Harrison, Indiana. Adjutant General and Provost Marshal General responsibilities were combined into a single activity. The Deserter Information Point's mission is to verify the status of individuals reported dropped from the rolls of their organizations as deserters; to enter the names of those individuals into the Federal Bureau of Investigation's National Crime Information Center; to distribute warrants to civilian and military law enforcement officials; to remove the names of deserters from the National Crime Information Center after they have been returned to military control; and to make status determinations in specific deserter cases.

As the year closed, the Adjutant General and Provost Marshal General files on deserters had been merged, a current deserter inventory of about 25,000 verified cases had been compiled, contact had been established with military law enforcement authorities throughout the United States and with their civilian counterparts in major population centers, erroneous apprehensions had been reduced, and a number of administrative procedures had been refined, such as, for example, the waiting period at oversea replacement stations before an individual was listed as AWOL. A number of major problems were also identified and discussed at a conference held in June 1972 at the Enlisted Personnel Support Center and attended by Army representatives from around the world.

The number of courts-martial dropped sharply in fiscal year 1972, a trend reflecting the reduction in overseas deployment and the reduction in the over-all size of the Army, as well as the previously mentioned programs of personnel quality control and stabilization. A comparison of the numbers of general, special, and summary courts-martial for 1971 and 1972 reveals the magnitude of the change:

PERSONS TRIED BY COURTS-MARTIAL IN FISCAL YEAR 1971*

	Convicted	Acquitted	Total
General	2,507	140	2,647
Special	25,920	2,074	27,994
Summary	13,907	1,084	14,991
Total	42,334	3,298	45,632

* These data revised and refined from those in FY 1971 report.

PERSONS TRIED BY COURTS-MARTIAL IN FISCAL YEAR 1972

	Convicted	Acquitted	Total
General	1,867	180	2,047
Special	15,239*	1,303	16,542*
Summary	12,134	793	12,927
Total	29,240	2,276	31,516

* 931 of these were special courts-martial where a bad conduct discharge was included in the approved sentence.

In keeping with the Administration's effort to make 1972 a year in which the upward trend in crime would be reversed, the Army re-emphasized crime prevention at all levels of command and stressed the right of Army personnel and their dependents to feel safe and secure within the Army environment. The results of these efforts were reflected in favorable trends in the last two quarters of 1972; rates of crimes of violence, crimes against property, and drug offenses were down about 10 percent when compared with the highest quarterly experience of the last two fiscal years. Efforts were directed at preventing crime, improving security, enhancing the capabilities of Army law enforcement elements, refining reporting procedures, keeping Army leaders fully informed of trends, and emphasizing that crime is everybody's business.

Despite all of these efforts, there were 31,229 cases during the year ending November 30, 1971 in which members of the U.S. Army overseas were charged with offenses that were subject to the jurisdiction of foreign courts. In 15,624 of these cases, the offenses charged were solely violations of foreign law, and thus subject to exclusive foreign jurisdiction. The remaining 15,605 cases involved alleged violations of both United States military law and foreign law, over which the foreign country had the primary right to exercise jurisdiction. Foreign authorities waived that right in 14,818 (95 percent) of these cases. Of the 15,605 members of the U.S. Army who were finally tried by foreign courts, only 90 received sentences to unsuspended confinement.

Over the past year, internal improvement rather than external legislative change was stressed in the evolutionary development of the Army's military justice system. Amendments to the military justice regulation, published as Change 8 to AR 27–10, placed a number of improvements in effect on December 15, 1971. The new provisions provided for a formal mechanism of legal consultation for an individual prior to making his election as to whether he will accept an Article 15 punishment or reject it and demand trial by court-martial; required that the actual imposition of punishment under Article 15 be by the commander in person so as to obtain the maximum amount of counseling potential from the procedure; and required that the results of Article 15 punishment be posted upon the unit bulletin board so as to insure that punishments are imposed in an impartial manner.

The amendment also provided for the issuance of search warrants by military judges. This new power on the part of military judges in no way derogates the traditional power of commanders to authorize searches and seizures within their commands; rather it is a new power concurrent with that of the commander and is intended to reduce the number of searches held inadmissible in court because of an inadequate

showing of probable cause to conduct a search. A further change, under consideration as the year closed, would provide for the permanent inclusion in military personnel records of Article 15 punishment, which would make these records available in connection with all personnel actions concerning an individual.

In late fiscal year 1971 the Committee for the Evaluation of the Effectiveness of the Administration of Military Justice (Matheson Committee) submitted its report. It found that the system of military justice was sound, but found that among young officers there was a certain amount of discontent concerning it. The basis of that discontent was found to be a lack of knowledge and understanding of how to function as commanders within the military justice system.

In response to the findings, the Office of The Judge Advocate General developed several projects to inform laymen concerning the military justice system and to educate nonlawyers with legal responsibilities in meeting these legal requirements. The program was also designed to reduce delays in courts-martial and Article 15 processing times by helping commanders and other leaders to function more effectively within the system. Four new Army pamphlets were published covering convening authorities, charge sheets, correctional custody, and other legal matters for use at various levels. A Senior Officers' Legal Orientation course was established at The Judge Advocate General's School, Charlottesville, Virginia, and military justice instruction was made mandatory in officer basic and advanced courses and in Officer Candidate School.

A legal center pilot program was also established in U.S. Army, Europe and, on a test basis, at Fort Carson, Colorado, and Fort Belvoir, Virginia, staffed by judge advocates, to supervise the processing of legal actions.

Following a lengthy test of the Military Magistrate program, the Commander in Chief, U.S. Army, Europe, in July 1971 delegated to military magistrates the authority to arrange the release of pretrial confinees under certain circumstances. A military magistrate—a field grade judge advocate—was appointed for each of the two USAREUR stockades. A pretrial confinement checklist accompanies each accused to pretrial confinement; the magistrate examines the seriousness of the offense, the accused's record, and whether the accused has dependents in the command. After thorough investigation, the magistrate makes his decision concerning release.

In October 1971 The Judge Advocate General launched an extensive minority recruiting drive. Annual recruiting visits were made to law schools approved by the American Bar Association and to law schools with substantial minority enrollment. As a result of this cam-

paign, 17 applications were received requesting appointment in the Judge Advocate General's Corps; 14 students, 11 of them black, were selected for duty in fiscal year 1973 following admission to practice.

As another part of the minority recruiting program, a summer intern program was established authorizing the hiring of 100 law students for employment in the Army legal offices in the United States and Europe; 96 participated in the first summer, 19.9 percent of them female, 23.7 percent minority group members. Eight of the students were employed in Europe as assistant counsel for courts-martial; two were black, including one female, and a white female was in the group.

In June 1972, a contract was executed with the National Bar Foundation, the executive arm of the predominantly black National Bar Association, to recruit minority lawyers for the Corps. The Foundation will undertake a threefold recruiting program, designing and disseminating information, visiting law school and bar associations to recruit candidates, and serving as a central clearing house to process requests and refer potential applicants to the Office of the Judge Advocate General.

A major effort was made to increase the number of black judge advocates in Europe. Over half of the Army's black judge advocates are assigned there, and the total was raised from three in March to eight in May 1972, with one black judge advocate assigned as a full-time special court-martial judge.

In April 1972 the Army's first course of instruction to train legal clerks opened at the U.S. Army Adjutant General's School. The course is of 7 weeks and 3 days' duration, and graduates will be utilized to eliminate the approximate 50 percent shortage of legal clerks in the Army.

Fiscal year 1972 was a period of evaluation and expansion of the Army's Pilot Legal Assistance Program, whose establishment and initial test in New Jersey were covered in last year's report. Between February 1, 1971, and January 31, 1972, the New Jersey experience was appraised and four additional jurisdictions—Arizona, Colorado, Kansas, and Alaska—were added to the test program. Senior staff judge advocates stationed at large military installations within these states were relied upon to provide immediate direction under the over-all guidance of The Judge Advocate General.

Initial steps were to obtain approval and support from local courts and bar associations, whose acceptance was a key condition to court appearances by out-of-state Army lawyers. Whether judge advocate officers not admitted to practice in the test jurisdictions could appear as counsel in their courts was one problem; whether the civilian bar was prepared to share potential clients—impecunious as these soldiers

and their dependents might be—with Army legal assistance lawyers was another. By the close of the year, the results of testing in the five states were mixed. The greatest resistance tended to come from members of the private bar who saw the plan as a threat to their livelihood. Candid appraisal indicates that the program is unacceptable at the present time to the bars of Alaska and Kansas; when the tests ran into antipathy and distrust in these jurisdictions the Army suspended them. Problems remained in Arizona and Colorado.

The disappointing results in those four states were offset to some extent by the noteworthy success achieved by the program in New Jersey. Centered at Forts Dix and Monmouth, the Pilot Legal Assistance Program has accepted over 800 cases, over 200 of them involving in-court appearances by military lawyers on behalf of soldier clients. The key factor was the enthusiastic attitude of the New Jersey bar towards the program. The cases may be classified into four general categories: small claims, landlord/tenant, domestic relations, and criminal offenses. In keeping with the criterion of limiting assistance to those who could be honestly classed as indigent, no cases were accepted where the client could afford the services of a civilian attorney (of about 1,000 clients interviewed each month, only 4 percent qualified for legal services under the financial eligibility test). Approximately 25 percent of the clients served were black, and these soldiers and their dependents are reported to be pleased with the comprehensive services provided by their military lawyers.

To conduct the test program at Forts Monmouth and Dix, five additional Judge Advocate General's Corps captains were assigned to each installation as overstrength, appropriate clerical staff was hired, and the respective law libraries expanded to include more local materials. The general acceptance and success of the program in New Jersey provides a model for eventual application in other jurisdictions.

The Army's final report on the Army Pilot Legal Assistance Program was forwarded to the Secretary of Defense on May 10, 1972.

The misconduct connected with the operation of service clubs, open messes, and exchanges over the past several years, which led to litigation in a number of cases, prompted a number of internal and external investigations, reorganizations, and revision of procedures. Several congressional committees held hearings, and committee representatives visited a number of Army installations to appraise contract performance relating to interior design, construction, remodeling, furnishing, and decorating of officer and NCO clubs. Various nonappropriated fund activities were examined and Army witnesses were called before the Special Subcommittee on Nonappropriated Funds

Within the Department of Defense to testify on a broad range of programs, projects, and funds.

At the same time, the Army retained a national consulting firm to study the structure of the Army club system and propose a concept that would be more effective in eliminating malpractices and improving the quality of goods and services for the troops. Traditionally, the supervision of nonappropriated funds below the departmental level had been the responsibility of field commanders. At the headquarters level, only a few people had been assigned the task of keeping track of a worldwide system of some 500 messes with about 800 additional branches, and with total revenues in calendar year 1971, for example, of $276.6 million. Thus in December 1971 the Secretary of the Army approved the establishment of a Directorate of Nonappropriated Funds under the Deputy Chief of Staff for Personnel, with one of his four divisions handling clubs and open messes. The directorate compared and tested existing and new concepts of supervision of club administration, identified the need for increased training for all personnel connected with club management, and, as the year closed, was studying a proposal for a Club Management Agency that would provide professional club management and technical assistance.

In addition to these developments, a proposal that credit cards be introduced in officer club operation was tested with successful results, and a decision by the Secretary of the Army to remove and ban slot machines throughout the Army led to a consideration of other possible sources of revenue to support clubs and open messes.

Voting Assistance and Community Service

On December 14, 1971, the Department of the Army Voting Assistance Officer function was transferred from the Chief of Information to The Adjutant General. The program embraces responsibility for developing policy and procedures to implement the Army's part of the Federal Voting Assistance Program by providing technical advice and assistance within the Army. The Army is concerned primarily with insuring that voting information is disseminated at all levels of command to all eligible personnel; that the Federal Post Card Application for Absentee Ballot is delivered to all personnel; and that special assistance is provided to military voters as required.

The enfranchisement of the 18- to 20-year-old citizen through the 26th Constitutional Amendment required an expanded effort in this field within the military services. It was estimated that over 675,000 new voters in the armed forces would be eligible to vote insofar as age requirements were concerned. Qualified voting assistance officers and counselors were appointed throughout the Army to inform, assist,

advise, and encourage eligible military personnel, civilian employees overseas, and their dependents to register and vote by the absentee process.

During the year, more than 25 assistance visits and inspections were made to selected Army installations by voting representatives from Department of the Army Headquarters. Several guides were published and a publicity campaign of nonpartisan nature was launched, including active use of the service news media, films, magazines, bulletins, and posters. Reports from major Army commands and the Army Staff confirmed the effectiveness of the program.

During fiscal year 1972 the Army Community Service (ACS) held a workshop for representatives from all major commands operating a community service program. A film depicting the services available was released, a volunteer handbook was published, and an orientation course for newly assigned officers was prepared for launching in fiscal year 1973. There were 168 ACS centers in operation in the year, with 318 fulltime paid staff and over 4,000 volunteers answering over a million requests for services.

Revitalization of the Inspector General System

As the armed forces are a reflection of the society they serve, it was only natural that the social unrest of recent years should be reflected in the military and would call the Inspector General System increasingly into play. Although the system was operational and adequate, nothing stands still, and an examination of the system's role indicated that certain refinements in direction and in the capabilities of inspectors general to meet expanding requirements would make the system even more effective.

Thus during fiscal year 1972 a number of actions were taken that placed increased emphasis on people and the things that affect them most directly: increased emphasis was placed on selecting the highest caliber of personnel for assignment as inspectors general; the orientation given to officers detailed as inspectors general was improved; acting inspectors general were given closer supervision and more careful guidance; it was emphasized that inspectors general must be fully responsive to the interests of the individual and the Army; commanders were reminded of the need to recognize the value of close co-ordination with their inspectors general; and the value to the individual of duty as an inspector general was stressed.

The effectiveness of the Inspector General system was found to be enhanced when realistic goals and standards were established by commanders in co-ordination with their inspectors general, and when those standards and goals were understood by members of the command. One

of the major steps taken has been to increase the visibility and accessibility of inspectors general to Army personnel.

Civilian Personnel

Civilian strength in the Department of the Army for total military and civil functions remained relatively stable during the year, declining by only 1.4 percent from 486,359 at the beginning of the year to 479,529 on June 30, 1972. Despite the small decrease in total strength there was considerable change within the work force. Nearly every command was working to stay within reduced budgets, eliminating jobs, and experiencing small reductions in force. The Department minimized the impact of reductions through hiring freezes and the maximum use of attrition. Over 13,000 employees retired, including 3,562 who received discontinued service annuities.

While these cuts were going on, however, new mission requirements in support of the National Guard, the Modern Volunteer Army concept, and the control of drug abuse required additional staffing which resulted in a small net increase in employment within the United States.

Declining commitments in Southeast Asia led to a reduction of 11,469 employees or 40 percent of the local national work force in Vietnam. Modest reductions of local national employees also occurred in Japan and Korea. Slightly more than 12,000 local national employees on Okinawa were converted from direct hire to indirect hire status upon the reversion of the Ryukyu Islands to Japanese control.

The Department continued to emphasize equal employment opportunity (EEO) during the year. A special study was conducted to determine progress in implementing Army-wide and local EEO plans of action and to identify changes needed to assure continued program progress. Recommendations of the study for improved supervisor training, better installation level planning, and enlargement of EEO staff were being put into effect as the year closed.

The proportion of minority employees of the department remained unchanged during the year at 16.2 percent despite the numerous reductions in force and shifting missions. It is apparent that strength reduction and work force changes are not disproportionately affecting minority group employees.

In September 1971 an EEO plan of action for women was developed to increase opportunities for women in higher level jobs. The plan established numerical goals and timetables and provided for special counseling efforts to prepare women for advancement to mid-level positions. Late in the year the department awarded a contract for a study to be made of the utilization of women within the Army.

At the beginning of the year the Department of the Army became

the executive agent for the Department of Defense for the recruitment of professional educators for the DOD Dependents School System overseas. A major effort was made to increase the number of minority teachers employed in Europe. Intensive recruitment efforts extended to all major metropolitan areas of the United States. Despite the competitive demand for minority educators, 21 percent of the 603 teachers recruited for assignments in Europe were minority. This represented a significant gain in the minority proportion of the oversea teaching staff.

The Department successfully used a variety of special employment programs during fiscal year 1972, surpassing even its outstanding record of previous years in this area. Summer employment of youth again exceeded goals, totaling over 17,000 and including 9,627 young people in the disadvantaged youth category.

A major effort was made to provide employment for Vietnam era veterans. Almost 10,900 veterans were hired representing 14 percent of all gains to Army installations during the year. This figure is double that of the previous year. About 1,700 of these appointments were made under the Veterans Readjustment Authority. In fulfilling its special obligation to veterans, the Department used a variety of methods including temporary limited appointments, special training programs, and job engineering to adjust jobs where practicable to the limited qualifications of many of the young veterans.

The Office of the Judge Advocate General launched a new summer program designed to expose first- and second-year law students to the Army's military justice system. Emphasis was placed on hiring minorities to the maximum extent possible. Appointments were made under the Federal Summer Intern Program and 96 law students were hired.

The number of handicapped employees hired during fiscal year 1972 increased significantly over fiscal year 1971 from 469 to 733, representing a 56 percent improvement. This increase is attributable in great part to the additional efforts made at many installations and commands to employ the handicapped.

The number of Army-wide civilian career programs providing for the orderly intake, training, placement, and progression of civilian careerists increased from 15 to 17. The addition of two new career programs for employees in the fields of communications and manpower management will significantly expand the 84,407 positions now covered by career programs. Intake of interns into the career management system was curtailed during the year in response to reduced need. Even so, the Department maintained 2,900 interns in the program.

In 1968 an Army Program Review was made of civilian career management which resulted in 18 recommendations for improvement. Action has now been completed on 16 of those recommendations. Pro-

gram improvements have been in the areas of career intern intake, intern training, and the central inventory and referral operation. Careerists in all career programs will have continuing benefit from the over-all improvements in the administration and management of the career system.

The Civilian Career Program for Transportation Management was implemented during fiscal year 1972 with the Army-wide registration of approximately 600 professional employees. By June 30, 1972, 20 referral lists had been furnished to individual Army activities for vacant positions at grades GS–13 and above. Plans for establishing a formal intern training facility were in process at year end.

During fiscal year 1972, a new career program document, Civilian Personnel Regulation (CPR) 950–17, was prepared for the establishment of the Army Civilian Career Program for Materiel Maintenance Management. The program, as planned, expanded the Equipment Specialist Career Program to include all equipment specialists, plus other professional personnel involved in maintenance management. The approved document will be distributed early in fiscal year 1973. Implementation involves the registration of employees, establishment of screening panels, and preparation of referral lists. Equipment Specialist training centers will continue to support the materiel maintenance management program.

In connection with the Supply Management Center Program, career screening panels reviewed the records of over 5,000 management employees, GS–12 and above, in preparation for the development of Army-wide referral lists. During fiscal year 1972, 166 referral lists (containing approximately 2,000 names) were prepared for DA vacancies. Career program improvements included a published revision of CPR 950–13 which updated career training and development requirements.

On July 7, 1971, the Logistics Doctrine, Systems and Readiness Agency (LDSRA) was tasked with developing the program elements and an implementing document of a Capstone Program for Civilian Logistics. This will fulfill an objective established in 1968 by the DOD Long Range Logistics Manpower Policy Board that each service develop a "Capstone" Logistic Career Program for senior logistic positions tailored to the specific needs of the agency. In addition to program elements, LDSRA will determine types or categories of senior-level civilian logisticians needed, and the specific coverage of a Capstone Program. During fiscal year 1972, some analysis was made of the types and categories of positions to be covered, and an initial draft of the Capstone Program document was prepared.

In response to the President's desire to improve the quality of top federal executives, the department has established a system to assure

identification and development of Army employees with executive potential. The Army system will concentrate on identifying key positions which need to be filled by highly competent managers; identifying a select group of highly qualified, well-motivated employees who have potential for assuming executive-level positions; and providing training and career development opportunities for those individuals. The Army's executive development program will use many of the features of the Army's civilian career system. As part of the program, individual training and development plans will be prepared for all super-grade employees and for middle-level executives who show potential for advancement to top grades.

The employee suggestion program is a device used to improve the efficiency of the department by putting into effect the ideas of its employees. The quality of suggestions submitted by civilian employees and military personnel improved significantly. The Army's tangible benefits from this program increased by $14 million this year to savings estimated at $87 million.

Union membership among Army employees continued to grow, but at a much slower rate than during the previous year. At the end of the year there were 215,200 employees in organizations for which unions had been recognized as the exclusive representative, an increase of 11,400 over the prior year.

The growing importance of labor negotiations was recognized and given emphasis. The department developed a new training course aimed at increasing the capabilities of experienced management negotiators. Comprehensive labor relations training continued to be given, with 330 commanders, managers, supervisors, and personnel specialists attending courses sponsored by the department. In addition, extensive training efforts were carried on at the local level using centrally prepared materials.

The Office of Management and Budget (OMB) asked all federal agencies to reduce their average GS grade level beginning with fiscal year 1972. The military departments were required to maintain their June 30, 1971, average grade at the end of fiscal year 1972 and to reduce average grade by .15 of a GS grade in each of the succeeding two fiscal years.

The Army's plan to reduce the average grade was approved by OMB and placed in effect in the first quarter of fiscal year 1972. This plan required the development of reorganization plans as the first step in local implementation and established a formula for estimating the cost of average grade changes. Action to reduce average grade was accomplished by the use of attrition, reorganization, selective hiring freezes, and restructuring of civilian positions to lower grades. The Department

successfully met the first year's goal. The June 30, 1971, average grade of 7.7372 was reduced to 7.6048 by June 30, 1972.

As a result of the VOLAR test program concluded during the year, it became apparent that civilian support of the Modern Volunteer Army program and military and civilian co-operation in implementing this program are essential to its success. Special emphasis was placed on providing prompt and courteous service to soldiers in areas such as Special Services, Finance and Accounting, and Post Exchange. In support of this effort, seminars were developed which provided information to employees on how to improve the quality of services provided to military personnel and their families.

Civilianization of tasks not related to military effectiveness continued during fiscal year 1972. Authority was granted by the Civil Service Commission to give employment preference to the dependents of soldiers stationed in overseas areas. This authority proved effective in providing employment to military dependents. It applies to many full-time, summer, and student employment areas and is particularly useful in enabling overseas commands to employ soldiers' wives.

VII. Reserve Forces

The Army National Guard (ARNG) and the U.S. Army Reserve (USAR) are an integral part of the military forces required for national defense. Within the Army force structure they provide first line forces to augment the active forces and furnish the sustaining balance for the active Army. In a broader sense the Reserve Components are a very visible power potential. They are the indispensable foundation force in the event of prolonged conflict. Properly equipped, manned, and trained, they can add formidable strength to the nation's posture in international dealings and diliberations.

The fiscal year 1972 Reserve Components structure contained 8 combat divisions, 21 separate combat brigades, and the units required to round out the active Army's division forces and to provide balanced division forces in the Reserve Components. The structure also contains a number of special units,including on-site air defense units, and general support units to expand the Army's training and mobilization base. In this last category are 13 training divisions whose mission is to operate training centers upon mobilization. Conversion of the Reserve Components structure to the latest active Army tables of organization and equipment was essentially completed during the year.

The historic role of the Reserve Components to provide training units and qualified individuals for active duty in time of war or national emergency has not appreciably changed, despite the ambiguities of mobilization policy in the mid-1960s. However, subsequent events have underscored the need to improve their responsiveness and readiness to support the nation's military posture. As the active Army has phased down from its wartime configuration, missions and emphasis have been redirected to the ARNG and the USAR, and new demands have been placed upon their capabilities. Like the rest of the Army, the Reserve Components are accommodating to new circumstances, a process that will continue through the near future.

Personnel

Maintaining the strength of the Reserve Components has become a major challenge in attaining the goal of an all-volunteer military force. Experience during the past year indicates that it will be increasingly difficult to meet draft requirements as draft calls continue to decline.

The longstanding waiting lists of draft-vulnerable applicants for enlistment in the reserve forces of recent years have disappeared. High losses occurred during the year due to the terminations of six-year enlistments during the early stages of the Vietnam War, while actual strengths have dropped below statutory minimums.

Paid drill strength of the Reserve Components at the end of fiscal year 1972 was as follows:

	ARNG	USAR
Authorized	400,000	260,000
Actual	387,539	235,192
Accomplishment	96.9 percent	90.5 percent

The effect of the decrease in the draft is reflected in the numbers of non-prior-service personnel enlisted in fiscal year 1972, as shown in the following table:

	ARNG	USAR
Objective	88,890	56,200
Recruited	46,853	15,529
Accomplishment	53 percent	28 percent

Faced with declining interest in membership, the Reserve Components initiated active and viable recruiting and retention programs during the past year. Training programs were developed for recruiters and personnel assigned recruiting duties on both a part-time basis and in full-time technician status. In addition, career counselors were assigned to major active Army installations as part of the Reserve Components/Active Army In-Service Recruiting Program, which became operational at twenty-five military installations in the continental United States and in Hawaii and Germany on January 3, 1972. The Reserve Components portion of this program offered active duty soldiers the option of up to 179 days early release if they joined a Reserve Component unit. By March 29, 1972, some 25,000 active-duty soldiers had availed themselves of this option; but the program's success created serious shortfalls in active Army strength, particularly within the European Command, and it was terminated on that date. Reserve Component career counselors remained at active Army installations where they operated the basic full-time In-Service Recruiting Program. This program includes a sixty-day early release for all active-duty enlisted personnel assigned in the Continental United States who are leaving the active Army. Between March 9 and June 29, 1972, 1,659 individuals volunteered and were accepted for unit assignments in the Ready Reserve under this program.

Due largely to the results obtained from the short-lived Reserve Components/Active Army In-Service Recruiting Program, recruitment of prior service personnel by the ARNG and the USAR exceeded pro-

gram objectives. Total prior service personnel recruited in fiscal year 1972 is reflected in the following table:

	ARNG	USAR
Objective	13,940	8,800
Recruited	37,779	17,896
Accomplishment	271 percent	203 percent

Efforts to increase representation of minority groups in each of the Reserve Components in fiscal year 1972 resulted in an increase of 2,719 black personnel in the ARNG, for a total of 7,680; and 1,019 in the USAR, for a total of 6,869.

Several tangible incentive proposals to overcome strength shortfalls in the Reserve Components were under study or awaiting Congressional action at the end of the year. They are reduced retirement age enlistment and re-enlistment bonuses, full-time insurance coverage, increased retirement point credits, and modification of enlistment options. Also, a study has been initiated covering all aspects of the enlisted career programs of the Reserve Components for the purpose of determining ways to enhance career atractiveness. Improvement of advanced opportunities and professionalism within the enlisted grades are key objectives of the study.

The Individual Ready Reserve (IRR) of the USAR comprises officer and enlisted personnel who are either not required, do not desire, or are unable to join a Reserve Component unit. A comparison of the strength of the IRR at the end of fiscal years 1971 and 1972 is as follows:

	30 June 1971	30 June 1972	Increase
Officers	70,922	82,257	+11,335
Enlisted	920,117	976,807	+56,690
Total	991,039	1,059,064	+68,025

The number of ARNG and USAR technicians employed on a full-time basis to perform administrative, supply, and maintenance functions which unit personnel are not able to accomplish during normal drill periods increased during the year. Authorization of a larger technician force reflects changes in functions and increased equipment inventories. The following table reflects the status of assigned technicians:

	Fiscal Year 1971	Fiscal Year 1972	Increase
ARNG	23,273	26,955	+3,682
USAR	6,496	6,936	+ 440
Total	29,769	33,891	+4,122

The active Army supports the Reserve Components with officer and enlisted advisers to assist units to achieve and maintain prescribed

mobilization readiness objectives. Advisers have no command authority, but provide advice and assistance to the units to which they are accredited to help those units accomplish their missions. Status of advisers at the end of fiscal years 1971 and 1972 is shown below:

	ARNG		USAR	
	Fiscal Year 1971	Fiscal Year 1972	Fiscal Year 1971	Fiscal Year 1972
Officers				
Authorized	859	880	755	803
Assigned	655	767	702	704
Enlisted				
Authorized	1,186	1,233	1,230	1,288
Assigned	1,100	1,086	1,140	1,162

Training and Readiness

Following a review of Reserve Component missions, programs and manpower levels in 1971, the Office of the Secretary of Defense recommended that the military services evaluate ideas to improve readiness and deployment times. The Army responded by initiating a number of evaluations and training tests in fiscal year 1972 that will continue into the new fiscal year and beyond. These tests and other studies currently under way are aimed at improving unity, mutual support, advisory efforts, force structure, and deployment times. Hopefully, they will generate better training and mobilization concepts so that Reserve Component capabilities will be in better balance with Army requirements.

The premobiliztion training objective of Reserve Component units has been raised to "the highest levels of individual and unit proficiency that are achievable in a pre-mobilization status." Previously, the objective was company-level proficiency, which has now become the minimum acceptable standard. Also, a decentralized training policy has been adopted that eliminates specific, repetitive training requirements, thus freeing unit commanders to conduct the training they deem necessary to improve the readiness and deployability of their units.

The Board for Dynamic Training and its successor, the Combat Arms Training Board, on which four ARNG and four USAR officers serve full-time, studied the training problems of the Reserve Components. Several promising initiatives were under way, including unit training extension courses and advances in the area of training aids and devices.

Army training programs, Army training tests, and Army subject schedules were also under revision. The unique training environment of the Reserve Components is a matter of specific consideration in the development of these revisions.

Army service schools have responded to special Reserve Component training requirements in an outstanding manner during fiscal year 1972. On very short notice the Infantry School at Fort Benning, Georgia

prepared and put into operation a new course to meet the air mobility training needs of both aviation and nonaviation units that resulted from the transfer of a large portion of the Army's aviation capability to the Reserve Components. New resident and nonresident courses have been established at the Command and General Staff College at Fort Leavenworth, Kansas, to provide increased opportunities for Reserve Component officers to meet more stringent educational prerequisites for promotion. The new promotion standards, which became effective on July 1, 1972, are designed to improve professionalism and leadership and bring the Reserve Component officer promotion system more closely into line with that of the Regular Army. Also, U.S. Continental Army Command has set up procedures permitting brigade commanders to request that Army service schools provide training programs to meet specific problems or deficiencies.

A total of 22 Army Reserve Component units participated in Logistics Exercise 1972 (LOGEX 72), and 56 units took part in Logistics Exercise/Reserve Components 1972 (LOGEX/RC 72). These were the first full-scale logistical command post exercises since 1969 and were held at Camp Pickett, Virginia, during the spring of 1972. Several innovations were employed in the 1972 version of LOGEX, including the incorporation of existing contingency plans and logistics offensive concepts in the exercise plans, the introduction of the latest logistical task organizations, and the utilization of automatic data processing systems.

Materiel, Supply, and Maintenance

The over-all logistics capability of the Reserve Components to provide trained units and qualified personnel in any future emergency requiring a rapid and substantial expansion of the active forces continued to improve during 1972. Equipment valued at $1.05 billion was issued to Reserve Component units, as compared to issues of $727 million in 1971 and $300 million in 1970. Approximately three-fourths of the dollar value of the equipment turned over to the Reserve Components was for modernization items, including aircraft, tracked combat vehicles, medium tanks, wheeled vehicles, self-propelled artillery, rifles, and communications equipment.

The ARNG and the USAR received 319 tanks and 677 armored personnel carriers during the year, as well as 129,000 M16 rifles and over 5,000 tactical radios. The full utilization of the radios was hampered, however, by shortages of mounts, harnesses, and other installation kit items. The Reserve Components received their first allocation of second generation multichannel equipment. Initial deliveries are scheduled for fiscal year 1973. The addition of 1,287 aircraft to the Reserve

Components inventory and the phasing out of a large number of second line aircraft brought the total number of aircraft on hand to 2,005, of which 65 percent were first line types. The USAR received their first issue of CH–47 cargo helicopters during the fiscal year. Negotiations were completed to transfer 63 U–3 twin-engine aircraft from the U.S. Air Force to the Reserve Components as a preferred substitute for the U–21.

The influx of large quantities of equipment and the modernization of the Reserve Components inventory have had a positive effect on the morale of the reserve forces and have improved considerably the potential for realistic training. However, additional equipment is still required to bring all units to levels which will permit training without constraints and the replacement of old, outmoded equipment. The Reserve Components currently have 65–70 percent of authorized training equipment on hand.

The Reserve Components registered significant improvements in equipment maintenance during the year. Data indicates that their maintenance of combat vehicles and support equipment compares favorably with the active Army and that their maintenance of tactical vehicles surpasses the active Army record.

During fiscal year 1972 the Army National Guard established a fourth transportation aircraft repair shop in Gulfport, Mississippi, to provide required support maintenance services to aviation units in the southeastern United States. The program for improved maintenance productivity initiated during fiscal year 1971 whereby the ARNG repairs inoperable equipment with parts supplied by the active Army was expanded to cover the eventual repair of 1,800 armored personnel carriers, 85 M–60 tanks, and 12 command post carriers.

A number of important management tools for identifying and isolating problems and applying corrective actions in the logistics area were initiated during the year. A new logistics intensive management program provided improved visibility throughout the chain of command for the on-hand equipment readiness level of Reserve Component units scheduled for early deployment. This program also permitted a more meaningful distribution of excess assets to accommodate readiness and training requirements. Additional management visibility was achieved through the Selected Items Management Program. Items receiving special treatment under this program included tanks, rifles, armored personnel carriers, tactical radios, army area communication systems, and aircraft. A Maintenance Improvement Program was established to evaluate and improve the effectiveness achieved in the use and support of equipment provided to the Reserve Components. Organization and facilities adjustments were initiated, including the provision of mission-

oriented training for area maintenance support activities, increased authorizations for maintenance technicians, and additional maintenance support facilities. A program oriented primarily to improving policy and procedures in selected areas of logistics operations and to increasing efficiency and readiness was initiated under Operation Streamline. Areas examined for improvement included asset data reporting accuracy, repair parts stockage procedures, requisitioning of equipment, redistribution procedures, and costs data and storage requirements for packing and crating materiel to be used by selected Reserve Component units in the event of modernization.

Facilities and Installations

Fiscal year 1972 was the second in a ten-year construction program that provides essential facilities to improve unit training, promote unit readiness, and enhance esprit de corps and morale in the Reserve Components. The fiscal year 1972 military construction budget plan of $62.5 million reflected an increase of $37.5 million over the fiscal year 1971 figure and covered 149 projects in 48 states, the Virgin Islands, Puerto Rico, and the District of Columbia. Included were 89 ARNG armories and USAR centers, 52 administrative and logistical activities, and 9 training facility projects. A total of 224 projects included in the ten-year construction program are now under way. Upon completion they will satisfy approximately 14 percent of the over-all construction requirements of the Reserve Components.

The shortage of adequate training sites for weekend training, a serious problem in recent years, has been alleviated to a great degree through increased use of active Army military installations and state-controlled camps, as well as the acquisition of land areas declared excess by the military departments. Presently, 86 federal installations and 59 state-owned or controlled camps are in use. In addition, small parcels of privately owned lands are used throughout the United States for small unit training. Most of these private holdings are available on a local use agreement at no cost to the Army.

Expansion of the Reserve Components aircraft inventory has created a need for additional airfields for ARNG and USAR aviation units. The ARNG has identified aviation requirements at 54 locations, of which 26 were immediately available. Most of the remaining requirements were met on a temporary basis through civilian airport leases and interservice support agreements with military bases. During fiscal year 1972, acquisition action was completed for 26 permanent facilities; action on the remaining 2 should be completed during the early part of fiscal year 1973.

Military Support to Civil Authorities

The Reserve Components are available throughout the country to assist civil authorities in times of domestic emergency and natural disaster.

National Guardsmen answered the call to quell civil disturbances on 20 occasions during fiscal year 1972, a sharp decline from the previous fiscal year. A total of 7,352 Guardsmen from 12 states participated.

Over 19,000 National Guardsmen and 2,000 Army Reservists served in relief operations which included flood disasters in West Virginia, South Dakota, and along the eastern seaboard in the wake of Hurricane Agnes. Their performance was noteworthy and professional and did much to enhance the public image of the citizen soldier.

VIII. Management, Budget, and Funds

Organizational Developments

There were several changes in the Department of the Army's organizational structure in fiscal year 1972.

Since March 31, 1964, responsibility for civil defense has been assigned to the Secretary of the Army and has resided in the Office of Civil Defense, Department of the Army. On May 5, 1972, the Secretary of Defense established the Defense Civil Preparedness Agency to carry on the civil defense role delegated to him by Executive Order 10952. At the same time, the Office of Civil Defense, Department of the Army, was disestablished and its funds, personnel, manpower spaces, and other resources transferred to the Defense Civil Preparedness Agency.

On October 28, 1970, the Army Chief of Staff designated a Special Assistant for the Modern Volunteer Army (SAMVA) to centralize in a single office, at the upper levels of the Army, control over the broad range of activities related to achieving a volunteer force. The Office of the SAMVA developed a program for the Modern Volunteer Army outlining actions, incentives, priorities, requirements, experiments, funding, and goals for fiscal years 1971 and 1972. As fiscal year 1972 closed, the SAMVA had completed the principal tasks assigned to the office by the Secretary of the Army and the Chief of Staff. On June 30, 1972, the office and position of the Special Assistant for the Modern Volunteer Army were disestablished. Responsibility for the volunteer Army program was left in traditional staff channels with monitorship and central control in a Volunteer Army Office in the Office of the Deputy Chief of Staff for Personnel.

An Office of the Project Manager for Reorganization was established on April 24, 1972, in the Office of the Chief of Staff, to manage a series of plans for major reorganization and realignment actions to modernize, reorient, and streamline the Army's organization within the continental United States. Although improved efficiency was the main purpose of the realignments, the effort was designed to improve readiness, training, the materiel and equipment acquisition process, and the quality and responsiveness of management.

To respond to a growing need in recent years for more centralized direction and control of criminal investigative resources, and to provide more effective support to the departmental headquarters and the field

in this important area, the U.S. Army Criminal Investigation Command was established on September 17, 1971. The command, under the direct supervision of the Army Chief of Staff and the general staff supervision of the Deputy Chief of Staff for Personnel, exercises command, authority, direction, and control over Army criminal investigative activities around the world. It provides criminal investigative support to Army elements on a geographic basis and performs other functions in this field of specialization for the Department of the Army. The command is headquartered in Washington, D.C.

On July 1, 1971, the U.S. Army Intelligence Systems Support Detachment was formed at Washington, D.C., to support automatic data processing life cycle actions and Army management information systems objectives. The action responds to the Chief of Staff's instruction to Army staff agencies to establish Class II activities for this purpose. The Intelligence agency will provide guidance to the field in the subject area, produce standard software products for Intelligence systems, and develop and operate a Department of the Army Intelligence Data Handling System to meet the Intelligence requirements of the Secretary of the Army and the Chief of Staff. The central departmental system is scheduled to become operational during the second quarter of fiscal year 1973.

Also on July 1, 1971, as provided in plans outlined in last year's report, the Military District of Washington became a major field command reporting directly to Headquarters, Department of the Army.

For the past decade the Office of the Chief of Support Services has supervised the operation of the National Cemetery System and has been responsible for a number of other Army-wide logistical support services encompassing food, clothing, commissary, and surplus property activities. On May 15, 1972, the Office of the Chief of Support Services was disestablished and its functions assumed by two new Class II activities under the Deputy Chief of Staff for Logistics; a U.S. Army Memorial Affairs Agency to handle cemeterial affairs and a Troop Support Agency to handle logistical services.

Management Programs, Systems, and Techniques

The complexity and dispersion of modern military forces, coupled with competing demands for national resources, all require that our military money, manpower, and materiel be managed as efficiently and effectively as possible. Management programs, systems, and techniques have had to keep pace with advances in computer technology and automatic data processing. Numerous programs have been developed covering every conceivable phase of operations. Some of the more

important appear in this chapter; others are covered in a functional context in other sections of the report.

The Department of the Army Management Review and Improvement Program (DAMRIP) was created in fiscal year 1972 to energize Army management and solve a long-standing problem in Army management organization. The problem developed during the 1960s when a number of management improvement programs were established across the Army General Staff to respond to both internal and external requirements for improved resource management. Over-all Army management improvement efforts were fragmented and less than fully efficient.

The Comptroller of the Army was made responsible in fiscal year 1971 for implementing the Army portion of a government-wide management improvement program established by the Office of Management and Budget (OMB), and most existing Army management improvement programs were assigned or transferred to the Comptroller. The DAMRIP was created to integrate these elements into a unified program. It has two major goals: to insure that management programs in subordinate commands help the commander meet his management responsibilities and solve his management problems and to provide a commander with maximum latitude in conducting his management program. The DAMRIP stresses the need for a core of trained and skilled management experts to help identify and solve management problems and moves the Comptroller of the Army away from concern for the formal operation of programs and to a role of providing broad policy guidance and monitorship in the management improvement area.

Some modifications were made during the past year in the Worldwide Military Command and Control System (WWMCCS), which comprises the National Military Command System, the command systems of unified and specified commands, service and service component command headquarters, and the command and control support systems of Department of Defense agencies. The National Military Command System is the primary element of the WWMCCS and directly supports national command authorities and the Joint Chiefs of Staff. The controlling directive was revised in several respects. The definition of the term National Command Authority was revised to mean the President and the Secretary of Defense only. The channel of communications for Single Integrated Operations Plan execution and crisis management was designated as from the National Command Authority through the Chairman of the Joint Chiefs of Staff and to the executing commanders; the National Military Command System was designated as the priority subsystem of the WWMCCS, and the primary mission of the WWMCCS was to support the National Command Authority; a

WWMCCS Council chaired by the Deputy Secretary of Defense was established to provide policy guidance and direction over system details; and the Chairman of the Joint Chiefs of Staff was assigned additional system management responsibilities and directed to develop a system objective plan covering the period 1973–1992. The Army expended $3.5 million for the WWMCCS in 1972, and $4 million was budgeted for fiscal year 1973. (See also command and control matters in Chapter II.)

During the report year, development and testing continued on standardized automated logistics, personnel, and administrative subsystems of the Combat Service Support System (CS_3). Testing continued at Fort Hood, Texas. The Corps Support Command (COSCOM) portion was deferred to permit U.S. Army Computer Systems Command resources to be concentrated upon the Division Supply System (DISUP). As the year closed the Standard Installation/Division Personnel System (SIDPERS) was being prototyped to replace the personnel and administrative subsystem; a total systems integration test was in progress to validate the interoperability of all functional subsystems as well as the teleprocessing function. Deficiencies that surfaced during the year were corrected and the test plan was updated to reflect changes in hardware systems and testing, and preparation was begun on manuals, training texts, lesson plans, and instruction programs required to extend CS_3. Eventually it will replace the DLOGS and PERMACAP systems.

As a result of recommendations of a special departmental review panel, the Comptroller of the Army was directed to establish procedures for the periodic review and assessment of departmental responsibilities, to see which could be delegated to major commands. A number were identified, and actions were in progress to transfer them from Department of the Army to the commands so that managerial efficiency will be improved, resources will be used more effectively, costs will be reduced, and response time between commands and field activities will be expedited.

The Base Operating Information System (BASOPS) is an installation management system approved for thirty-three Class I installations in the United States and at two oversea commands—Alaska and Panama. It is the installation-level operating system of the Army Management Information System, designed to assist the installation commander in his roles of planning and executing departmental objectives. Three initial applications comprise BASOPS: military personnel accounting subsystem, supply and management subsystem, and financial management subsystem. As fiscal year 1972 closed, BASOPS had been fully installed at twenty-four installations; the remaining eleven including

those in Alaska and Panama are planned to be installed during fiscal year 1973.

On September 30, 1971, the Secretary of the Army delegated authority to make decisions on the method of performance of commercial and industrial-type functions to levels authorized by the Department of Defense. The Assistant Secretary of the Army (Installations and Logistics) was authorized to make decisions to establish or expand activities involving new starts for all functions except automatic data processing, which was assigned to the Assistant Secretary of the Army (Financial Management). Commanding generals of major commands and heads of departmental staff agencies were authorized to make decisions in behalf of the Secretary of the Army to continue, discontinue, or curtail activities at Class II installations and activities under their jurisdiction. This latter action eliminated cyclic reviews at departmental level and reduced the time required to reach decisions on installation recommendations.

Renewed emphasis on the Commercial and Industrial Activities Program during the year increased the number of new start actions processed by installations for departmental approval; the majority stemmed from proposals to invest additional capital in facilities and equipment for existing activities. At Department of Defense request, the Army Logistics Management Center conducted a series of executive seminars in the spring of 1972 to acquaint commanding officers and senior staff officials of all services with the requirements of the Commercial and Industrial Activities Program. Approximately 600 senior Army officials attended seminars at 21 locations throughout the United States.

The Department of the Army participated during the year in a multiservice effort to revise joint policy for the Department of Defense interservice support program. The resulting policy establishes the program in command channels, reduces reporting requirements, requires that interservice support be conducted on a reimbursable basis, redefines the program goal of economy to the federal government, and sets up a means of determining that the goal is being attained.

The Logistics Performance Measurement and Evaluation System (LPMES) was revised by the Department of Defense to make quarterly reporting more useful. Primary emphasis was redirected from problem solving to a broad overview of logistics performance. The revised concept reduces the number of supply functional areas; adds coverage on materiel maintenance; and expands coverage on procurement. The functional areas designed to represent the most significant aspects of logistics management were increased from 17 to 21. This management document depicts performance in units, percentage, dollars, items, and

other valid criteria applicable to an area under consideration, with comparisons made against a base period, area objectives, and established goals. By combining trend charts, brief analyses, and statistical data with intensive management, significant accomplishments were achieved. Within the 21 functional areas, 30 indicators with concomitant goals were developed for attainment in fiscal year 1972; 87 percent of these goals were achieved or performance was within acceptable levels.

During fiscal year 1972, the systems supporting computer equipment were upgraded for the U.S. Army, Pacific, Standard Supply System (3S)—the theater depot and inventory control center for supply and related financial data processing. The 3S system will eventually be integrated into the Standard Army Intermediate Level Supply Subsystem (SAILS).

An Army-wide review of the logistics system indicated that a greater standardization could be achieved in materiel support operations at the intermediate level. Accordingly, an effort was undertaken to develop SAILS, a subsystem that would encompass all logistic support operations between the wholesale system in the continental United States and the direct support and user levels in the United States and overseas. The initial objective was to develop, by June 30, 1972, a standard supply subsystem for management of supply at the theater and Continental Army Command level. A general functional description was approved and responsibilities assigned for concept development. By June 30, 1972, the functional requirements had been identified.

In December 1970, action was initiated to design a standard base level personnel system to support corps, division, and installation commanders. This Standard Installation/Division Personnel System (SIDPERS) will replace the automated personnel and administration functions presently performed under the Combat Service Support System (CS_3), Base Operating Information System (BASOPS), the Personnel Management and Accounting Card Processor System (PERMACAP), and unique systems in Alaska and the Canal Zone. As the year closed, a software and prototype test of SIDPERS was being conducted at Fort Riley, Kansas, with extension to follow commencing in November 1972.

A major Department of Defense project to reduce the costs of computerization was begun in February 1972 with the concept of regional computer sharing. The automatic data processing equipment in defense activities in the Philadelphia–Central New Jersey area provided the basis for a three-phase plan. ADP facilities would be consolidated for installation management applications at the U.S. Army Electronic Command, Fort Monmouth, New Jersey, embracing also its Philadel-

phia office and the Frankford Arsenal, Pennsylvania, and Picatinny Arsenal, New Jersey, in a Northeast Center Computer System. This remote terminal concept would then be extended to a larger number of facilities in the region. Based upon the efficiency and economy of this initial demonstration, similar regional computer sharing will follow in various parts of the country, involving numerous installations and activities.

The Corps of Engineers Management Information System (COE-MIS) consists of standard applications in the functional areas of comptroller, personnel, real estate, and resource allocation for civil works and military construction project management. Finance and accounting standard applications and varied engineering applications are operating in engineer divisions and districts in the continental United States. The next standard application of the over-all system, that of personnel administration, was installed in the first location—Lower Mississippi Valley Division, Vicksburg; six of nine division centers were operational with Honeywell G–437 computers, and one was also to be installed in September 1972 in the Office of the Chief of Engineers to handle program testing and maintenance as well as to process headquarters applications.

Separate scientific and engineering data processing systems (hardware) have been acquired to support the Army Materiel Command's research and development activities; complex scientific and engineering as well as business applications related to installation management are processed. This network of systems is designed to support the research and development community within the Army Materiel Command in processing scientific and engineering applications, and to provide data processing support for installation management and business applications not provided by standard systems such as the AMC Logistics Program Hardcore Automated (ALPHA). In February 1972 a program was approved under which ADP equipment will be relocated, augmented, or procured in order to consolidate data processing facilities for research and development purposes.

During fiscal year 1972 the Comptroller of the Army conducted analyses of major commands and of all Army small installations, subinstallations, and off-post activities in selected geographical regions to evaluate the use of resources in the light of assigned missions, and to make recommendations for consolidation or elimination of activities and reduction or curtailment of operating funds. A major command (U.S. Army, Europe) and a regional element (Metropolitan New York City) were surveyed, with estimated annual savings in excess of $15 million.

One of the Army's key programs to improve professionalism and

enhance and enrich the standing of junior officers and noncommissioned officers gathered momentum in fiscal year 1972. Titled Management Practices in TOE Units (MAP–TOE), it is a program under which junior officers, warrant officers, and noncommissioned officers are taught techniques that a first-line manager can use to improve production and the working environment at his level. Included are methods improvement, work measurement, quality assurance, soldier motivation, and the management process. To the soldier engaged in a support role in tactical units, these techniques give his job a new dimension. He sharpens his skill in the techniques of administration, supply, or maintenance, is challenged to be a manager, and is given the background to meet the challenge.

The MAP–TOE program was given high level support throughout the Army, and by the end of the year divisional units had started their training, while planning had begun to extend it to nondivisional tactical units, the Reserve Components, and many nontactical post, camp, and station Army support units. Orientation courses were also introduced into Army schools and the recruiting service.

Budget and Funds

The Army's budget request for regular appropriations for fiscal year 1972 totaled $22,811.8 million in new budget authority. Following reviews by the Office of the Secretary of Defense and the Office of Management and Budget, the President requested $22,207.1 million for the Army, and the Congress appropriated $21,183.4 million. In the following charts the chronological development of the fiscal year 1972 budget is traced and fiscal year outlays are compared with those of the two prior years. (See pages 123 and 124.)

Financial Management

In fiscal year 1972, the concept of critical independent analysis of Army appropriations as part of the departmental review process was introduced into the Department of the Army Budget/Program System. The Assistant Director of the Army Budget (Resources) performs this function to support the Budget Review Committee, the Program Guidance and Review Committee, and the Select Committee.

Significant progress was made during the year in the Department of the Army Financial Information System (DARFIS) to establish a central financial data bank at Headquarters, Department of the Army, for use by all financial managers. Through integrated computer systems, DARFIS will automate major budget and accounting reports and inte-

DEPARTMENT OF THE ARMY
BUDGET OUTLAYS FISCAL YEARS 1970, 1971, 1972

(In thousands of dollars)

	Fiscal year 1970	Fiscal year 1971	Fiscal year 1972
Military personnel, Army	9,017,713	8,605,458	8,093,665
Reserve personnel, Army	303,531	353,295	404,079
National Guard Personnel, Army	379,718	440,379	506,815
Operation and maintenance, Army	7,570,197	7,124,324	7,179,537
Operation and maintenance, ARNG	308,913	318,640	374,238
National Board for the Promotion of Rifle Practice	41	73	111
Procurement of Equnipment and Missiles, Army	5,206,121	4,357,073	2,973,076
Aircraft procurement, Army	—	—	61,400
Missile procurement, Army	—	—	176,652
Procurement of weapons and tracked combat vehicles, Army	—	—	32,623
Procurement of ammunition, Army	—	—	587,395
Other procurement, Army	—	—	63,286
Research, development, test and evaluation, Army	1,665,477	1,568,893	1,778,730
Military construction, Army	438,908	484,146	390,263
Military construction, AR	7,993	4,850	13,376
Military construction, ARNG	10,993	13,179	19,409
Defense production guarantee	—22	—2	—0—
Army Stock Fund	—131,183	—129,469	—134,074
Army Industrial Fund	12,713	—20,592	116,231
Army Management Fund	5,178	4,447	1,300
Subtotal	24,796,291	23,124,694	22,638,812
Army Trust Fund	108	137	1,432
Trust revolving fund	—732	—2,790	—
Applicable receipts	—46,592	—45,226	—42,037
Total Budget Outlays	24,749,075	23,076,815	22,597,507

grate the major management processes of program and budget formulation and execution.

Development of a new concept of reporting financial information to Army headquarters using electrical transmission of information and advanced computer processing continued within the Office of the Comptroller of the Army. The new reporting system involves the direct transmission of elements of information from installation level to Headquarters, Department of the Army, with the primary objective of reducing installation reporting requirements while also improving the accuracy and timeliness of reporting financial data.

The Army Study System was modified this year to synchronize study planning and programing with the budget cycle. Based on projected requirements for studies as derived from the Secretary of the Army's identification of major areas of concern to the Army, funds for studies are estimated and programed early in the budget process. Through successive review by Army staff agencies, by working groups of the Army Study Advisory Committee, and the committee itself, study programs are defined in sufficient detail to permit evaluation of a study's value in comparison to its cost. The scope of the Army Study System has been expanded to include the most important commands located in the United States.

The Joint Uniform Military Pay System (JUMPS) was implemented in the Army in fiscal year 1972, 18 months earlier than had

CHRONOLOGY OF THE FISCAL YEAR 1972 BUDGET
DIRECT BUDGET PLAN (TOA)

(In millions of dollars)

Appropriation	DA Submission to OSD	Amended President's Budget [a]	Budget Approved by Congress	Supplemental [b] Approved by Congress	Total [c] Approved by Congress
Military personnel, Army	7,069.1	7,483.1	7,315.6	761.7	8,172.4
Reserve personnel, Army	372.8	386.1	385.1	62.2	476.0
National Guard Personnel, Army	446.9	486.4	486.0	111.1	597.0
Operation and maintenance, Army	6,545.2	6,864.6	6,661.2	105.3	6,904.7
Operation and maintenance, Army National Guard	352.0	366.0	370.0	10.1	380.1
National Board for the Promotion of Rifle Practice	.1	.1	.1	—	.1
Procurement of Equipment and Missiles, Army	4,653.3	3,819.4	(3,524.3) [d]	(—)	(3,502.5)
Aircraft procurement, Army	—	—	107.4	—	106.6
Missile procurement, Army	—	—	1,040.8	—	1,033.3
Procurement of weapons and tracked combat vehicles, Army	—	—	145.5	—	145.5
Procurement of ammunition, Army	—	—	1,718.3	—	1,718.3
Other procurement, Army	—	—	512.3	—	498.8
Research, development, test and evaluation, Army	1,841.6	1,951.5	1,839.6	11.1	1,850.7
Subtotal, excluding Construction	(21,280.9)	(21,357.3)	(20,581.8)	(1,061.6)	(21,883.5)
Military construction, Army	1,151.6	642.2	539.0	—	539.0
Military construction, Army Reserve	33.5	33.5	33.5	—	33.5
Military construction, Army National Guard	29.0	29.0	29.0	—	29.0
Subtotal, Construction Accounts	(1,214.1)	(704.7)	(601.5)	(—)	(601.5)
Total Direct Budget Plan (TOA)	22,495.0	22,062.0	21,183.4	(1,061.6)	22,485.0

[a] Includes April and June 1971 amendments.
[b] Consists of military, wage grade, and foreign nationals pay raises, and Supplemental for January 1972 pay raise.
[c] Fiscal year 1972 column of Fiscal Year 1973 President's Budget (includes transfers, reprograming, and other adjustments with Supplemental).
[d] Procurement of Equipment and Missiles, Army, was appropriated in five separate accounts in January 1972.

been planned. The pay accounts of all active duty military personnel were converted and placed on a central automated pay file located at the U.S. Army Finance Support Agency, Fort Benjamin Harrison, Indiana. Implementation of the system in the Army actually began in June 1971 when the accounts of the finance office serving Army departmental headquarters personnel were placed on the system for the first payday in July 1971. Remaining active Army pay accounts were converted in geographical increments as follows:

AREA	PLACED ON SYSTEM	FIRST PAYMENT
Continental United States	July 1971	August 1971
Europe	September 1971	October 1971
Pacific, Panama, Alaska	October 1971	November 1971

Notwithstanding the fact that the basic system proved to be effective, as demonstrated by a lack of significant system design and programing problems and by the flexibility to absorb the wage and price freeze and the first mid-month pay raise in the Army's history during the critical implementation phase, field components were unable to implement the system effectively. One of the principal problems was the troop withdrawal from Vietnam, with the acceleration in redeployment and the early release of personnel. The loss of trained personnel and high personnel turbulence created a situation in which pay actions were not forwarded to field finance offices in a timely or accurate manner by unit commanders and personnel officers. Field finance officers were unable to maintain document control and quality edits, and a breakdown in operational management led to pay complaints and raised doubts in commanders' minds that their soldiers would be paid accurately and on schedule.

To correct the problems, Department of the Army restructuring teams were constituted and prototype finance offices were established at U.S. troop locations around the world to assist major commanders in the task of reorganizing field finance offices under their jurisdiction to meet JUMPS requirements. Management and procedural training was provided, with emphasis on document control, pay transaction input, and effective use of personnel resources. To offset losses in experienced personnel, a special correspondence course was developed to provide field finance officers with an on-site training capability. Training of new personnel in JUMPS pay procedures was furthered by the use of mobile training teams from the U.S. Army Finance School.

Fiscal year 1972 was thus an important year in military pay history. The Army was the first of the armed services to field a centralized automated military pay system; that system has proved to be both efficient and effective. Further refinements will be made in 1973.

There were developments in the civilian pay area as well during the

year. General functional requirements were developed for a standardized Army Civilian Pay System, a sophisticated, computerized system that will eventually replace over 60 heterogeneous civilian pay systems currently in use at 110 installations throughout the Department of the Army.

In recent years the Army's utilization of its resources has come under closer scrutiny by the Department of Defense and the Congress. To help meet the advanced financial management requirements that are necessary for economical defense spending, the Army developed a Force Cost Information System (FCIS), a computerized financial management tool for war gamers and decision makers, one that supports all phases of the Army's planning, programing, and budgeting system. An Army analyst, seated on a combination television-and-typewriter-like console, can ask the computer a variety of complicated cost questions. Within moments, the computer performs the required calculations and flashes the answer on the screen.

This quick response capability is indispensable in replying promptly to the complex questions that must be answered for the Army's decision makers. For example, if the world situation were to be altered to the extent that the President felt it necessary to increase or decrease the number of armored divisions in Europe, the FCIS could answer a key question in the executive deliberation—how much money the Army would spend or save to change the troop commitment.

The FCIS's costing capability extends to 1,302 typical Army units ranging in size from a one- or two-man team to a full Army division. The computerized FCIS is used in co-operation with many other computerized models employed by Army planners to project the Army of the future. It was created and is maintained entirely with Army resources; no commercial contracts have been necessary. The model is updated frequently, and special updates are performed to reflect military pay raises and new budgeting requirements established by the Secretary of Defense and the President's Office of Management and Budget.

In the future, the budget-oriented data of the FCIS will be refined and the number and types of units costed by the model will be increased. The comprehensive cost information provided by the Force Cost Information System will help the Army prepare for the world of the 1980s.

Until July 1971, the Army had no dependable method through which to relate fully the cost of operating a specific unit to its readiness or ability to perform its mission. Many attempts had been made to solve this problem, but with little success. Thus, as a portion of a larger Army staff study, the U.S. Army Field Operating Cost Agency conducted a study to develop a means of forecasting cost at different levels of readi-

ness for major Army units (divisions). Historical cost data, collected in the normal course of agency operation, were used as basic information for the study; major factors that contribute to a unit's ability to perform its mission were also analyzed. Personnel strength, turnover, training, and equipment, facilities, morale, and funds were analyzed. Mathematical techniques were used to develop an equation which could be used to forecast the cost of maintaining a unit at a certain level of readiness. While all of these factors played a part in the cost and readiness, personnel strength and people to perform the task were the dominant considerations both in the capability to perform and the cost to perform.

The mathematical equation or cost model was further modified and improved in early 1972 to include smaller-type units and reserve components. In its present form the model does have certain limitations: all costs cannot be estimated, nor can the time lag associated with a change in readiness be estimated. And it is still not accurate for small units. Nevertheless, the study is an innovative tool to estimate costs associated with different levels of unit readiness, and a distinct step forward in the Army's efforts to insure that the taxpayer is provided the best possible defense for a dollar spent.

During the year a Uniform Depot Maintenance Cost Accounting and Production Reporting System was developed and published. It established a worldwide uniform method of cost accounting to be used in the preparation of budgets and cost analyses. It also provides a basis for determining quantities of items restored to serviceability by depot maintenance shops and total maintenance costs by weapons systems. This is done on an accrual accounting basis, and identifies and records both direct and indirect costs to the lowest functional work level. Worldwide implementation was initiated during the fourth quarter of the fiscal year.

In June 1970, a study entitled "Analysis of the Operation and Maintenance (OMA) Appropriation," an element of the Army budget, was completed, comprising an analysis of program elements. A product of the study was a handbook of OMA cost factors. The average strength of baseline Army forces (military man-years) was selected as a broad measure of output. The study established relationships between military man-years and costs in seventy-eight OMA mission and base operating program elements. This effort was continued when, in July 1970, a Special Assistant to the Comptroller of the Army was designated by the Chief of Staff to compare costs of base operations at installations within the Continental Army Command (CONARC) to determine reasons for variances and to establish cost relationships that assure funding levels in keeping with an adequate standard of living. The analysis (Maroun Study) covered cost, workforce, and output data for forty-two

CONARC installations over the fiscal years 1965-1970 and resulted in cost estimating equations for major base operation functions. The equations were based upon military man-years supported by the installation. After the study was approved in March 1971, the analysis was extended to both mission and base operation costs in commands worldwide; analysis of OMA costs were begun in CONARC, U.S. Army, Europe, U.S. Army, Pacific, Army Materiel Command, Strategic Communications Command, and the Office of The Surgeon General in fiscal year 1972. The ultimate objective is to establish standard resource estimating relationships for each OMA functional area. A continuing management challenge is to relate the many and diverse OMA activities to a common measure of Army mission output in order to determine adequate and balanced resource requirements.

Advanced managerial techniques were applied during fiscal year 1972 to develop a concept for a modern multipurpose computer system that would automate the Army's managerial chart of accounts as reflected in a series of regulations referred to as the Army Management Structure (AMS). This automated system will include the printing of AMS regulations through modern photocomposition processes, remote applications for updating master files, automated production of reporting files and tables, and automatic updating of data bank indexes.

Significant changes have been implemented in the Army Report of Survey System that substantially reduce the survey work load by eliminating the need for reports regarding property appearing on Tables of Organization and Equipment and Tables of Distribution and Allowances. Property, other than the loss or damage to personal arms and and equipment, is now dropped from accountability by the use of a modified Inventory Adjustment Report, when approved by the commanding officer. Proof of negligence or willful misconduct is no longer required to impose monetary liability during deliberate unauthorized use of government property. In addition, previous monetary limitations in this area have been raised so that greater latitude now exists in the monetary liability areas for imposition and collection by a commanding officer.

Following hearings by the Permanent Investigating Subcommittee of the Senate Committee on Government Operations into alleged irregularities in Army open messes, a commercial management consultant firm conducted a comprehensive study for the Army of the nonappropriated fund system. One of the firm's many recommendations was that nonappropriated fund accounting regulations be completely revised, updated, consolidated, and standardized. A comprehensive chart of accounts was prepared that will consolidate six existing regulations into one. Accounting, budget, and report forms are being standardized so that all installa-

tions will be consistent; these regulations will be promulgated in fiscal year 1973.

The U.S. Army's Field Operating Cost Agency's mission is to determine the operating costs of military units in the field. In July 1971, the agency was directed to conduct a study of the operating cost of a Republic of Korea army division. Interest in the subject was high in the light of the announced withdrawal of selected U.S. units from Korea.

The study had a twofold purpose: to provide the Korean Ministry of National Defense and U.S. Army representatives in Korea with meaningful figures on unit operating costs; and to assist the Korean Army to develop a cost analysis capability. A joint American-Korean team visited the 21st Division to assess the unit's records. The information collected was analyzed by U.S. and Korean teams and the resulting report has been useful to Korea as a tool of Army administration and to the United States as an aid in estimating future financial support to an ally.

In fiscal year 1972, Army strength continued to dip and funding became increasingly austere; as a result, Army management's task was to achieve programed objectives with reduced resources. Audit efforts were directed toward assisting the Army to make the most effective use of available resources. The Army Audit Agency issued 571 reports during the year, containing recommendations on 1,350 conditions pertaining to appropriated fund activities; another 209 reports were issued containing recommendations on 982 conditions pertaining to open mess activities. Fiscal year 1972 audit efforts included the expenditure of 33 man-years in Vietnam.

IX. Logistics

In the fall of 1969, against a background of numerous developments of major logistical import—Army strength beginning to recede from a wartime plateau, major redevelopments from the war zone getting under way, worldwide redistribution of materiel in prospect, comprehensive adjustments being launched to make an all-volunteer Army workable—it became essential to develop a plan to bring the logistics system under intensive management. Because of the magnitude and operational urgency of the task, the plan was called the Logistics Offensive.

The initial phase was devoted to making some immediate and short-term management improvements that would contribute to the success of the highest priority missions. The second phase, extending from January 1971 through all of fiscal year 1972, involved comprehensive action to develop standardized information and communication capabilities to improve management of the logistics system at all levels. The central feature was a Logistics System Master Plan to standardize management and to control future logistics system developments. As this was completed in May 1972, the next phase—to move the logistics system along the newly established development paths—was initiated as the fiscal year closed.

Certain clearly defined improvements had been attained as the period ended. The Army's logistics was providing the American soldier with what he needed, where and when he needed it, and in the condition required for his use. The dollar impact on the nation's budget, the citizen, the taxpayer, had been reduced; logistics budget requests were cut by $1.8 billion, and high priority requirements that would have called—had the plan not been instituted—for about $3.5 billion in funding over the past three years were satisfied.

Procurement

The United States Congress restructured the Army's single procurement appropriation, breaking it out into five separate procurement appropriations starting with fiscal year 1972. The long familiar Procurement of equipment and Missiles, Army (PEMA) appropriation is supplanted by:

Aircraft procurement, Army
Missile procurement, Army
Procurement of weapons and tracked combat vehicles, Army
Procurement of ammunition, Army
Other procurement, Army

This change in the appropriation structure appeared in House Appropriations Committee Report No. 92-666 of November 11, 1971, and Senate Appropriations Committee Report No. 92-498 of November 18, 1971. The House report noted that the Army's single appropriation gave the Army far greater flexibility to move funds within the appropriation than that enjoyed by the Navy and the Air Force, each of which have three separate procurement appropriations. It was also stated that Congress had only limited visibility and control over the one large Army appropriation, and had difficulty in relating procurement authorizations for separate categories (aircraft, missiles, weapons, tracked vehicles) to the total appropriation.

The change was implemented by the Office of the Secretary of Defense through conversion of its computer records, and by the Army, by the end of calender year 1971. At Army level, every effort was made to avoid complications in the existing management structure and procedures and to take advantage of the restructuring of the five appropriations to make necessary adjustments.

Shown below is a comparison of actual procurement programs, including approved reprograming, under the new structure covering the last three fiscal years (in millions of dollars):

	Fiscal Year		
	1970	1971	1972
Aircraft procurement, Army	408.8	206.3	106.0
Missile procurement, Army	804.0	957.3	1,033.3
Procurement of weapons and tracked combat vehicles, Army	269.8	282.7	149.8
Procurement of ammunition, Army	1,733.6	1,371.3	1,718.3
Other procurement, Army	984.6	696.1	507.2
Tactical and support vehicles	(433.0)	(389.8)	(211.1)
Communications and electronics	(299.5)	(184.1)	(143.0)
Other support equipment	(252.1)	(122.2)	(153.1)
Production Base Support (PEMA)	318.1	—	—
Total	4,518.9	3,513.7	3,515.2

Aircraft Procurement

The Army's aircraft procurement appropriation finances the acquisition of tactical, training, and utility airplanes and helicopters, and associated electronics, communications, and armaments systems; modification of in-service aircraft; ground support equipment; and centrally managed high-value depot reparable assemblies and repair parts such as engines, transmissions, gear boxes, and major components. Of the $106.6 million aircraft procurement authorization in fiscal year 1972, $33.8 million was allocated to purchase 400 OH–58 light observation helicopters, $3.3 million was for avionic test sets, $40.3 million

was assigned to modification of aircraft already in hand, $10.1 million was allotted for spare parts to support a worldwide inventory of 10,500 aircraft, and the remaining $19.1 million was for ground support equipment, first destination transportation, and production base support.

Missile Procurement

Congress appropriated sufficient funds in fiscal year 1972 to permit substantial improvement in surface-to-surface and surface-to-air capabilities. Safeguard, the antiballistics missile system, however, was funded at the same level as fiscal year 1971. Missiles and launchers for the Dragon, TOW, and Lance systems were procured in quantity. These will provide surface-to-surface weapons with greater flexibility, range, and accuracy than any previously available. The Lance is designed for use by higher combat echelons against long range targets, while the Dragon and TOW will provide the individual soldier with accurate and lightweight antitank weapons never before available to him. The TOW demonstrated its capabilities successfully in Vietnam. In the surface-to-air role, the improved Hawk was about to enter the inventory as the year closed, and a major modification of the Chaparral was in progress.

Weapons and Tracked Combat Vehicles

In fiscal year 1972, the procurement of weapons and tracked combat vehicles amounted to $107.3 million for tracked combat vehicles and $42.5 million for weapons and other combat vehicles. This provided financing for tanks, armored vehicle-launched bridges, grenade launchers, laser range finders; improvements to personnel carriers, tanks, howitzers, recovery vehicles, and weapons; and support equipment and facilities, among other things. Amounts in both categories will rise in fiscal year 1973 to $189.1 million and $70.4 million respectively. The major elements were the tank programs. The M60A2 modification program moved ahead, with orders for 210 tanks awarded to the Chrysler Corporation on November 29, 1971, with initial delivery scheduled in October 1972. Appropriated was $20 million to terminate the XM803 (MBT70), with an equal sum to initiate development of a new main battle tank. A special task force was formed in January 1972 to develop new performance characteristics within guidelines established by the Congress.

Ammunition Procurement

The fiscal year 1972 budget was essentially designed to meet forecasted worldwide losses of ammunition—primarily consumption

in Southeast Asia and in training. Funding had been based upon estimated consumption—actual rounds-per-tube experience for the twelve-month period ending in November 1970; it provided full support for the Army of the Republic of Vietnam and an anticipated drop in consumption by U.S. troops. Unforeseen was the forthcoming North Vietnamese invasion of South Vietnam, which required a budget amendment on which action was pending as the year closed.

Other Procurement

This appropriation, covering such commodities as trucks, trailers, communications equipment, materials handling equipment, and boats was divided into three categories, with allocations of $211.1 million for tactical and support vehicles, $143.0 million for communications and electronics, and $153.1 million for other support equipment.

Among the significant developments in this area during the fiscal year: the 1¼-ton truck, the M561, was released for shipment worldwide; the 8-ton GOER truck contract was restructured from a five- to a four-year procurement of 1,300 units; the tactical and support vehicle program was reduced; communications and electronic contracts for command and control systems, computers, and radios were awarded or funded; and support equipment procurement was programed.

Ammunition

The over-all decrease in ammunition consumption in Southeast Asia coupled with worldwide improvements in the over-all ammunition situation, led to a reduction from 33 to 24 in the number of ammunition items controlled by the Department of Army Allocation Committee for Ammunition.

Fiscal year 1972 was the fourth year of a twelve-year and $3.5 billion program to modernize ammunition facilities. Future year expenditures must average $400 million to complete the program as planned. Priority is being given to eliminating hazards connected with the production of explosives and propellants. Pollution is also receiving attention in accordance with executive orders.

Materiel Maintenance

There was futher progress in fiscal year 1972 in tailoring maintenance concepts to specific commodity and weapons systems. Revised maintenance support concepts for six additional commodity groups were developed, and the allocation of maintenance tasks for the major payload vehicles of the Army was revised and plans prepared for a limited

field evaluation. Computer models were used increasingly to evaluate alternatives in the allocations of maintenance tasks.

Efforts were also continued to simplify maintenance tasks. Requirements for modular design were incorporated in documents defining new equipment to further the concept of repair by modular replacement. To insure availability and control, the system for direct exchange of unserviceable for serviceable modules was being expanded and standardized. A manual system to achieve this in field units was developed and tests were scheduled. An automated version of the system will follow.

To improve the maintenance of Army equipment in troop units, an intensive motivation and education program was undertaken as a part of the Command Maintenance Program. A departmental board for command maintenance was formed to conduct seminars and briefings in the subject area, and traveled to thirty-two locations at home and abroad to inform commanders at all levels of the principles underlying maintenance policies and programs and to solicit recommendations to improve them.

During fiscal year 1972 the Army Maintenance Management System was simplified and streamlined through the use of new data collection methods. The requirement to report a large volume of data to the national level was eliminated, and new statistical sampling techniques were introduced. The latter are incorporated into a series of sample data collection plans for selected types of equipment, plans that provide for a controlled reporting system to limit the amount of recording and reporting of maintenance actions at the troop unit level to the minimum essentials needed for management purposes. To test the concept, reporting was initiated in February 1972 on the ¼-ton utility truck, covering 2 percent of the fleet or 1,500 vehicles, and by year's end had been expanded to eight types of equipment. Others will be added in fiscal year 1973.

Concepts were developed in 1969 and 1970 and guidance was issued to insure that only the required range and quantities of repair parts would be designated for initial distribution with new equipment. Experience during fiscal year 1972 indicates that the repair parts initially furnished to the soldier are being reduced by some 45–50 percent, about double the magnitude envisioned when initial provisioning concepts were revised. The changes have improved the Army's ability to support the initial deployment of equipment; increased the ability of mangers to control the initial provisioning process; reduced the investment costs; and minimized excesses inherent in provisioning judgements.

There was progress also in the effort to control and reduce the

costs of ancillary items required to operate major equipment. Policy changes were issued relating to accountability, transfer, retrograde, and turn-in of major equipment for repair and overhaul, and should result in reduced inventories and expenditures for these items.

To insure the serviceability and readiness of prepositioned materiel configured as unit sets, revised guidance was developed concerning care and preservation. As the year closed, preparations were under way for a serviceability and property management survey of these stocks in Europe.

As American involvement in Vietnam declined, the emphasis of the Closed Loop Support System was gradully redirected to the Army's logistics readiness worldwide. Conferences were held in the year to identify items that are adversely affecting command logistical readiness. Major commanders were encouraged to accept the program as a means of upgrading materiel readiness and to nominate items to be added to the program.

The Maintenance Assistance and Instruction Team Program, described in last year's report, was evaluated during fiscal year 1972 and was judged to be valid and accepted Army-wide.

The maintenance capabilities of the Army National Guard have been used to expedite the redistribution of equipment from Vietnam to Guard sources in the United States. Selected unserviceable equipment is moved to National Guard shops without going through the normal Army wholesale system for redistribution. The active Army provides repair while the Guard supplies the labor, a procedure initiated in 1971 with 250 2½-ton trucks as a test case. Both time and money were saved, and in fiscal year 1972, armored vehicles were added to the program. Other items will be phased in until National Guard requirements have been met.

Finally, the Army's policy—adopted in August 1970—to use retread tires to satisfy 75 percent of replacement needs has produced significant savings. In fiscal year 1971, 303,632 tires representing 52 percent of total tire requirements were retreaded at a saving of $9.9 million; in fiscal year 1972, 322,943 tires representing 63 percent of needs were retreaded at a saving of $9.2 million. Because of the success the Army was asked to develop a joint regulation that would extend the program to all of the services.

Aviation

During the Vietnam conflict the Army used special materiel management and shipping procedures to support weapons systems in Vietnam. The highly controlled system was co-ordinated directly between Vietnam and the aviation commodity manager of the U.S. Army

Aviation Systems Command at St. Louis, Missouri. The Aviation Management Center in Vietnam provided central management of aviation materiel. Early in 1972, U.S. Army, Pacific, prepared plans to transfer aviation weapon system management from Vietnam to Okinawa effective July 1, 1972. The new organization will be titled the Theater Aviation Materiel Management Center. It will manage aviation materiel for all United States and Free World military forces in the Western Pacific that use Army aircraft, and will be integrated as a directorate into the Okinawa Base Command.

Various elements of aviation logistics have been and will be tested in exercises. In fiscal year 1972, an exercise to test the offshore discharge of containership included an air element. LOG LIFT I, as the air portion was called, demonstrated that medium and heavy lift helicopters have the capability to serve in a logistics role in offshore discharge operations. An airhead clearance exercise was scheduled for the spring of 1973 to evaluate the medium and heavy lift helicopter capability for sustained operation and to evaluate air terminal equipment for compatibility with U.S. Air Force systems. The exercise will also test requirements for the forthcoming heavy lift helicopter.

Since April 1966, an Army aircraft depot maintenance unit, the 1st Transportation Corps Battalion, has been stationed offshore in Vietnam aboard a Navy ship, the USNS *Corpus Christi Bay*. The unit and ship comprise a Floating Army Maintenance Facility. With the reduction of American forces in Vietnam, it was decided to return the facility to Corpus Christi, Texas, where it would remain operational to support contingencies anywhere in the world. Departing Vietnam on April 16, 1972, the ship had stopped for maintenance at Sasebo, Japan, when the Army Command in Vietnam requested its return to provide further aircraft maintenance support required by an upsurge in enemy activity. The floating aircraft maintenance facility demonstrated its mobility and flexibility by returning to its duty station off Vietnam and becoming fully operational on May 31, 1972.

The concept of employing a military aircraft depot maintenance unit aboard a ship has been highly successful. By the time the phasedown began in Vietnam, the facility was repairing or overhauling each year about 80,000 items with a new value of $18 million and filling over 26,000 parts requests for grounded aircraft. It also provided unique technical and fabricating capability to Vietnam and supported numerous emergency requirements, contributing to the highest operational readiness rates ever achieved by Army aircraft.

Supply and Depot Management

During the buildup of U.S. forces in Vietnam, a Department of the

Army Distribution/Allocation Committee was established to control the allocation of critical supply items. This has proved to be so effective that the process has been continued as a means of insuring the best possible worldwide readiness with the limited quantities of materiel available. In fiscal year 1972, direction over the flow of controlled items to subordinate elements of U.S. Army, Pacific, was emphasized. Also at departmental level an asset control task force was established in March 1972 to review control, reporting, and accounting procedures.

In fiscal year 1972, Army stock fund obligations amounted to $2.5 billion to support $2.9 billion in sales. The obligations were only slightly below those of fiscal year 1971, while the sales level declined by 6 percent ($0.2 billion) from the previous fiscal year. The 1972 trend—of obligations holding steady with a slight but continuing decline in sales—reflects the leveling off of declining support requirements, evident in operational trends of the last two years. The direct support system became operational in U.S. Army, Europe, and in the Eighth U.S. Army, Korea, during fiscal year 1972, resulting in a further reduction in oversea operating stockage requirements.

Fiscal year 1972 obligations for equipment and missile secondary items totaled $80.7 million in support of $933.9 million of issues. While fiscal year 1972 obligational authority was only $2.0 million (or 3 percent) less than fiscal year 1971, it should be noted that provisioning obligation authority in support of new equipment deployments increased by $15.4 million, or 100 percent over fiscal year 1971. Disregarding the provisioning obligations, decrease in replenishment obligations amounted to $17.7 million, or 22 percent, while issues declined $207.3 million, or only 18 percent. This trend of obligations, decreasing at a rate greater than the decrease in demands and issues, indicates increased utilization of on-hand long stocks and a corresponding decrease in year-end levels. It is expected that this trend will level off after all excess assets have been returned from Vietnam. However, there was a very high level of unserviceable applicable returns, and the favorable overall relationship of returns to issues is expected to continue.

Continued attention was given to physical inventory procedures during fiscal year 1972. The frequency with which sensitive items are inventoried was increased; effective in January 1972 selected items—those controlled under the Selective Items Management System (SIMS)—will be inventoried at least once each fiscal year at stateside and oversea depots; sample inventories are prohibited. Quarterly inventories will be conducted at stateside installations and direct and general supply units. All sensitive items in the hands of units on property books will be completely inventoried at least quarterly.

In April 1972 the Office of the Secretary of Defense approved a

plan for the integrated management of bulk fuels. This function, which has been performed by the Army Petroleum Center under the Army Materiel Command, will be transferred on May 1, 1973, to the Defense Fuel Supply Center of the Defense Supply Agency. The Army will retain responsibility for physical management and control of inventories in Army-controlled terminals, but product ownership passes to the Defense Supply Agency. The Army Petroleum Center will be dissolved and remaining service petroleum functions will be transferred to the General Materiel Parts Center, New Cumberland Army Depot, Pennsylvania.

In consonance with decisions related to fielding a thirteen-division force, the 9th Infantry Division and the 101st Airborne Division (Airmobile) were activated and reconstituted at Fort Lewis, Washington, and Fort Campbell, Kentucky, respectively. This action required careful co-ordination to insure that equipment delivery would coincide with the arrival of personnel assigned to component units. As the year closed the phasing-in of equipment and personnel was working effectively.

Transportation

The Army's oversea passenger and cargo movements were down slightly in fiscal year 1972 from those of the previous year. The Military Sealift Command moved about 11,074,900 measurement tons, while the Military Airlift Command moved about 172,200 short tons, both about 9 percent below fiscal year 1971 levels.

With respect to passengers, the Army continued to use the most expeditious means to move personnel and save man-days of travel. About 1,056,600 Army-sponsored passengers were transported worldwide, 992,200 by air, the remainder by sea.

An intensified customs inspection program was initiated by the Department of Defense in June 1971, under which the Department of the Army was designated executive agent for customs matters. The Department of Defense Customs Inspection Program was instituted to prevent the use of the Defense Transportation System to transmit illegal narcotics, drugs, and other forms of contraband. It established policies and procedures for customs inspection and examination of personnel, personal property, and military cargo, and of mail originating in oversea areas and destined for customs territory of the United States or movement within the Defense Transportation System overseas. The regulations were to be effective July 1, 1972.

Restraint on the use of premium transportation was maintained through the year under the Airlift Challenge Program, which provides for automatic review, survey, and challenge of requirements initiated by field commands. An average of 3,300 shipments per month was

diverted from airlift to sealift at an estimated saving of $5.3 million per month, all without detriment to delivery dates.

Military Standard Transportation and Movement Procedures (MILSTAMP) continued to provide effective means to control the movement and documentation of cargo within the Defense Transportation System. The Army identified a need to extend MILSTAMP overseas as a prerequisite to obtaining total pipeline visibility in oversea areas. The extension will provide a data base to develop standard port operating procedures using automated data processing systems. Initial moves in the project were taken in the last half of the fiscal year.

Sealift remains a critical consideration in Army planning and operations. Economic factors have compelled the civilian maritime industry to convert merchant ships from a break-bulk to a container fleet. The Military Sealift Command has predicted that there will not be enough break-bulk dry cargo ships after 1972 to meet Department of Defense cargo requirements. Since the Army must rely upon the commercial maritime industry to transport the bulk of its cargo, it is imperative that the Army logistics system be compatible with the civilian maritime industry. Experience in Vietnam revealed that containerization offers a potential means for reducing logistical cost and improving the responsiveness of the logistical system in both peacetime and wartime. The Department of Defense has been using commercial container services to distribute a significant portion of its materiel to locations worldwide. But present military facilities, equipment, concepts, and doctrine are inadequate and incompatible with the newly developed commercial container system, and the Army's logistical capability in the 1972–1982 decade will be impaired unless the potential of the commercial industry is capitalized upon.

Within the Department of Defense a steering group comprised of service representatives was established in September 1971 to coordinate surface and air container systems development and provide systems managers with guidance and direction. A Department of Defense project manager's office was established, jointly staffed, to handle surface container-supported distribution systems development, and located with the Commander of the Army Materiel Command. This office prepared and the services approved a master plan that addressed funding, equipment, research, and evaluation. In addition, improvements in the container chassis (MILVANS) were under study to improve surface mobility. The MILVAN is being tested for air movement under the supervision of a land-air-land container task group, and operational evaluations were conducted in the area of offshore discharge of containerships.

The Army's railway fleet (motive power, rolling stock, special

equipment) consists of approximately 13,000 pieces of equipment, with an estimated replacement value about $800 million. Equipment age ranges from 15–30 years. The fleet is adequate to support utility railroad operations; however, most of the equipment that would be used by military railroads in oversea operations and in continental United States interchange service is or will shortly be technically obsolete. To insure that the Army's railway fleet is a viable element in the mobility structure, and adequate to meet operational contingencies, a program to upgrade and modernize it was begun in fiscal year 1972. Over the course of five years the diesel electric locomotive fleet will be rebuilt. General purpose tank cars of 20,000 gallon capacity will be purchased for the interchange rail fleet operated by the Military Traffic Management and Terminal Service. Modernization of the contingency rail fleet maintained in storage is being examined, and elements that cannot be upgraded for oversea operation after 1975 will be disposed of. Procurement that would standardize motive power to two types of locomotives is being planned for 1975.

In the area of water transportation, the interagency study, Sealift Procurement and National Security (SPANS), was launched in May 1971 to identify the sealift procurement system that would make the best use of Defense financial resources in the light of its national security mission. Defense representatives, including the service secretaries, joined those of the Department of Commerce, the Federal Maritime Commission, and the Office of Management and Budget on a senior advisory group to review elements of the study. Two of the four parts of the study had been completed by year's end.

The majority of the Army's watercraft fleet is over-age and rapidly approaching technological obsolescence. Extensive use in Southeast Asia, with only limited opportunity for maintenance and with increasing difficulty in obtaining repair and replacement parts, has compounded the problem. To insure the best possible utilization at the minimum cost, and to insure that the Army's watercraft fleet is prepared to support active Army and reserve units, new policies and objectives for fleet use were issued in August 1971 covering management, procurement, disposal, and maintenance, and the withdrawal of watercraft from Vietnam.

In fiscal year 1972, the Army gradually disengaged from its operational logistics role in Southeast Asia as large numbers of American soldiers were withdrawn from Vietnam. Huge stocks of supplies and equipment had to be redistributed. Air and surface transportation were brought under tighter control, and assets and requirements were reviewed so that the needs of the residual forces could be met and excess stocks disposed of in the most practicable and economic way. Although

some supplies and materiel did not warrant either the labor and cost of salvage or the expense of shipment back to the United States, a large amount of Army materiel—about 643,000 short tons as of July 1971—was considered to be suitable for return. Through careful control over shipments, using airlift for selected items, expanding the use of containerization, and co-ordination of shipping in Southeast Asian waters, all but 20,000 tons had been returned to the United States by the end of the year.

To measure the cost effectiveness of moving perishables for American troops from home to overseas, a test was begun in February 1972 to compare costs of the shipment of lettuce by air and by sea. Costs and spoilage under both modes of shipment will be compared. The test should contribute to policy determinations concerning the airlift of perishable substances.

Supply, Maintenance, Transportation Operations

Annual reports of military activities regularly record the establishment of all kinds of committees, programs, and projects, but rarely take note of terminations. In fiscal year 1972, a logistics operation called Streamline was terminated effective with the end of the year. The program was designed to promote the maximum in logistics efficiency, to reduce manpower and money requirements, and to improve readiness through new logistic management and operational concepts. The principal objectives were to reduce stockage, eliminate excesses, reduce order and ship times, and apply inventory-in-motion principles, and these had either been accomplished or were near completion on June 30, 1972. Streamline tasks that had not been completed were moved into the Army-wide upgrading effort.

The concerted effort begun in 1971 to reduce the vast quantity of items in the Army supply system, and which saw the Army Catalog reduced from 1.4 to 1.2 million active items, was continued in 1972. A special effort was made to reduce further the number of items and to limit requisitioners to items listed in the active portion of the Army Master Data File. Exceptions were made for medical items and repair parts. Slow moving items were eliminated and the range of types, sizes, and grades of items was reduced. As the year closed there were 815,000 active items in the Army Catalog.

In the spring of 1971, against the background of a sharply declining American involvement and the increasing possibility of an end to the war, U.S. Army, Vietnam, undertook a study to determine the quantities of supplies and equipment on hand in the war zone, the possible extent of American requirements, and the magnitude of the task of

returning unneeded stocks to the United States. It was concluded that, beginning July 1, 1971, some 650,000 short tons of Army materiel would remain to be shipped out of Vietnam, assuming that all U.S. Army units departed the country. This tonnage included materiel in the hands of units, in depots, being used by contractors, or excess to needs and available for disposal. The study was inhibited by such considerations as estimating how much materiel would be lost to combat, accident, deterioration, and theft; and how much would be turned over to foreign governments or remain in the country as a result of government decisions.

The over-all estimate of 650,000 tons proved to be remarkably accurate. After shipping 612,400 short tons out of Vietnam during fiscal year 1972, U.S. Army, Vietnam, had only 66,400 tons remaining, an amount well in line with residual force and contractual requirements. Economical utilization of excess materiel generated by troop redeployment became a major logistical task from 1969 onward, and especially during the accelerated withdrawal in 1972. The equipment withdrawal was performed without restricting presidential options related to Vietnam negotiations.

Over and above these efforts in Vietnam, the Army continued to act as executive agent over the redistribution of excess materiel of the military services throughout the Pacific area. Since 1968, excess materiel with a value of over $2.5 billion has been reported, with $347.1 million referred for redistribution and $805.3 million designated for return to stock in the continental United States. As the current year closed, $54.3 million of materiel was being screened for disposition.

In connection with property disposal, there were several actions at Department of the Army level in fiscal year 1972. One of these was the transfer of property disposal functions from the Office of the Chief of Support Services to the Office of the Deputy Chief of Staff for Logistics. Historically, large quantities of surplus property have been generated by the military services during and immediately following the end of combat operations. The rapid reduction in combat operations in Vietnam left vast quantities of surplus property there. To assist in the disposal of surpluses there and elsewhere in the world under the most advantageous terms possible, a logistics task force was established. Virtually all property disposal functions of the Department of Defense were assigned to the Defense Supply Agency, thus bringing operations under a single manager. The Army Corps of Engineers will retain responsibility for disposal of surplus property generated under the civil works program, and the Army will retain responsibility for operating the Pacific Command Utilization and Redistribution Agency. The demilitarization of surplus combat materiel will remain with the Army but

will be funded by the Defense Supply Agency through receipts from the sale of surplus property.

In Vietnam the acquisition cost of usable property inventories increased from $36 million in fiscal year 1971 to $65.7 million as of June 30, 1972; scrap decreased in the same period from 260,000 to 109,000 tons. The sharp increase in usable property inventory was of course the result of the rapid phasedown of ground combat operations and in part the difficulty inherent in conducting commercial business affairs in a combat environment. Prospective buyers had to contend with a shortage of vessels; a lack of dockside storage and loading facilities; corruption at local government levels; difficulties in obtaining export licenses, and inadequate labor force; and labor union slow-downs and work stoppages. To overcome some of these problems, a sales office was opened in Singapore and high-value items were shipped there from Vietnam for sale to interested buyers from friendly nations throughout the world. The percentage of return was measurably higher than on the same property sold in Vietnam. Property was also shipped to Subic Bay in the Philippines to promote higher returns on sales there than would have been possible in Vietnam.

In connection with property disposal worldwide, the purchase value of usable property decreased from $446 million in 1971 to $436 million as of June 30, 1972; scrap inventories decreased from 326,000 tons to 176,000 tons in the same period. Excess and surplus property with a purchase price of $251.4 million was redistributed among the military services and other federal agencies; $71 million in property was donated to state surplus property agencies through the Department of Health, Education, and Welfare under the provisions of Public Law 152, 81st Congress; public airports received $2.9 million; educational activities of special interest to the armed forces received $1.2 million; and other eligible organizations received $1.4 million. The total acquisition cost of all donated property was $26.5 million.

The acquisition value of usable property sold to the public amounted to $504.9 million; proceeds of the sale were $24.3 million, or 4.8 percent of the acquisition cost. Some 416,900 tons of scrap were sold for $26.8 million, and the Department of the Army joined the Department of Defense in concurring with a State Department plan to make huge quantities of scrap metal available to the government of Vietnam under highly favorable terms.

In November 1971, the chairman of the Committee on Government Operations informed the Secretary of Defense that the committee would conduct an inquiry into the effectiveness of surplus property disposal operations in Europe and the Far East. A team arrived in Germany on

November 18, 1971, and remained until mid-June 1972. The principal concern seemed to be over the sale of military equipment without adequate demilitarization and allegations that military hardware was being sold at unjustifiably low rates compared with prices subsequently obtained by surplus property dealers. Senate hearings were to be held in July 1972.

The task of redistributing or disposing of American stocks in the Pacific region was magnified not only by the sharply declining war in Vietnam but by the return of the Ryukyu Islands to Japan and a reduction in the American commitment in Korea. Stateside teams from the Army Materiel Command and the Continental Army Command went to the Pacific area during the fiscal year to assist regional agencies in depot stock management and to expedite the disposition of excess materiel. Use of these special logistics assistance and instruction teams with their special skills and technical knowledge has improved logistics management.

In past years the Army has been able to use Military Airlift Command logistics carriers between the continental United States and oversea theaters for high priority cargo only. As heavy lift cargo aircraft like the C–5A have been developed, Army planners have prepared to use it for routine air shipment of selected items overseas. This offers a potential for substantial savings in pipeline and stock level operations. Under an Army program called Routine Economic Airlift (REAL), oversea commands are provided authorized replenishment by air. Savings could be effected because pipeline and on-hand inventories are reduced by air resupply to oversea theaters, worldwide inventories are easier to control, item managers obtain better visibility over stocks, supplies are moved more expeditiously, and materiel readiness is improved. The Army employed a contractor to develop selection techniques and formulae based upon pipeline savings, holding costs, transportation costs, and packaging differentials. By September 15, 1971, 442 items had been placed on the air shipment program, and in ensuing months this was expanded to cover 725. By the close of the fiscal year, 8,884 items were judged to be eligible for the program, and shipment on a routine basis was expected to be instituted before the end of calendar year 1972.

During fiscal year 1972, attention was focused upon procedures for collecting accurate, comparable data concerning the cost of maintenance of Army equipment, especially at depot maintenance level. Such data are essential for maintenance management and for procurement decisions, for instance, when it is necessary to determine whether it is more economical to overhaul unserviceable items or buy new equipment. Thus new procedures were developed and incorporated in the existing

maintenance cost accounting system to insure uniform methods throughout the Army for defining and computing costs.

Transportation reporting also had continuing attention during the year as actions continued to mechanize what has been a manual compilation of statistical data concerning cargo and passenger movements into and out of the continental United States. Such data is compiled to identify commodity groupings, budget appropriations, passenger categories, and origin and destination, among other data, to assist the Military Airlift Command, the Military Sealift Command, and the Military Traffic Management and Terminal Service to forecast long-range work load. The first phase of a program to mechanize selected transportation movement reports—automating surface cargo and air cargo reports—was completed in fiscal year 1971; a second phase that will attach dollars to the work-load data thus developed was in final stages as fiscal year 1972 ended. The product of this effort will be more accurate operation and maintenance budgets in the transportation area.

Logistics System Development

In May 1972 the Army published a Logistics System Master Plan (LOGMAP) that provides in one document a central source of information and guidance for improving the entire logistic system. The plan covers all logistics functions from Headquarters, Department of the Army, out to the user. The plan provides direction and co-ordination through a process of management by objectives that complements the Army Management Information System. It supports current Department of Defense logistics system policy objectives and serves as the Army counterpart to the Defense Logistics Systems Plan.

The general objectives of the LOGMAP are to standardize and improve the Army's logistic system by: enhancing logistics professionalism in the combat service support force; simplifying and making the system more responsive and cost effective; expanding inventory visibility and control; and operating the system with minimum resources consistent with readiness and operational requirements.

In the past, both manual and automated logistics subsystems were developed independently to meet the specific needs of the user. As a result, there was no cohesive common base or structure from which the essential elements of information needed by commanders and logistics managers could be generated and reported from the source up to the appropriate echelon. The Standard Army Logistic System (SALS), a product of LOGMAP, is an evolutionary program that will capitalize on past limited standardization efforts by encompassing all major logistics systems—supply, maintenance, transportation, support, and readiness—at each echelon of the Army.

During the year the Army was involved in a number of actions to expand common logistics support arrangements with the other services. Common logistics support is that by which logistic requirements common to two or more services can be satisfied by interservice support arrangements where efficiency and economy can be achieved. This support includes actions in which materiel or services are provided or received between components of the Department of Defense or between a Defense Department component and another federal department or agency.

The Army also participated in a number of ongoing efforts aimed at eliminating wasteful duplication in service logistic support activities. At Army behest the Military Logistics Council formed a joint ad hoc group of general and flag officers, under Army chairmanship, to develop plans and procedures to expand common logistics support. The Army also participated in a Defense Supply Agency review, directed by the Logistics Systems Policy Committee, to determine the common supply potential and requirements in oversea areas and to plan further improvements in interservice logistics systems. Also at Army initiative, the Army and the Air Force launched a pilot study into the possibility of consolidating support activities at Fort Lewis and McChord Air Force Base in Washington, a study whose outcome will determine whether further investigation is warranted concerning consolidation of other biservice contiguous installations in the continental United States and Alaska. And, finally, within unified commands the Army took an active role in the formation and operation of a Joint Interservice Logistics Support Board at Pacific Command Headquarters and in the Southern Command to further the principles and operation of common logistics support.

Tests of the Direct Support System (DSS)—the procedure under which Class II, IV, and IX materiel is supplied from designated depots in the continental United States to general and direct support units overseas, bypassing theater depots*—initiated in Europe and Korea in fiscal year 1971, were extended to Vietnam in fiscal year 1972. Under the DSS, stocks are reduced on the ground, sophisticated management is retained in the continental United States, visibility and control over stocks are enhanced, and transportation, maintenance, and supply systems are integrated. Under this system, space reductions have been made in logistics rather than in combat units. The order-ship time—the time between the initiation of stock replenishment action for a specific activity and the receipt by that activity of the materiel—has been reduced by one-half of that formerly required. Under the DSS

*Class II—individual clothing and equipment, tools, housekeeping supplies; Class IV—construction materiel; Class IX—repair parts.

concept, stocks at the overseas theater depot level will be reduced to a safety level, war reserve, and project requirements; routine operating requirements are satisfied on a routine basis by direct delivery from the continental United States, thereby reducing peacetime operational level stockage in the oversea theater by about 90 percent.

The Army Materiel Command (AMC) Five Year Automatic Data Processing (ADP) Program is designed to develop standard systems operating on standard equipment with standard computer programs and standard software. It encompasses the full range of data processing that supports the Materiel Command's mission—to provide wholesale support to the Army. The automatic data processing is provided by ninety-eight data processing installations. The more essential components of the five-year program are ALPHA and SPEEDEX.

The AMC Logistics Program Hardcore Automated (ALPHA) is designed to standardize all major systems—stock control, supply management, provisioning, procurement and production, financial management, cataloging, and maintenance—within seven national inventory control points and commodity commands, using standard automated equipment. It was installed by phases at the U.S. Army Aviation Systems Command during the year and will be extended, following evaluation, to all commodity commands.

The System Project for Electronic Equipment at Depots-Extended (SPEEDEX) is the depot portion of the five-year program. It provides for the first time a system-wide standardization of all applications used by more than one depot. At the wholesale level, the supply distribution mission systems of SPEEDEX were prototyped at Letterkenny Army Depot, Pennsylvania, and extended to Tobyhanna and New Cumberland Army Depots in that state. Operational evaluations concluded that SPEEDEX was an effective and viable system that provided adequate support to all three depots. It was approved for extension to the remaining Army Materiel Command depots in January 1972.

A related element in logistics system development is the U.S. Army Test and Evaluation Command's plan for the development of standard automatic data processing systems and programs. The Test, Evaluation, Analysis and Management Uniformity Plan (TEAM-UP) has two objectives: to provide the financial, logistical, and other resource information required to manage the testing mission, and to provide the scientific and engineering ADP support essential to testing. The Office of the Secretary of Defense approved extension of the business applications for TEAM-UP to five installations during fiscal year 1972, while the U.S. Army Strategic Communications Command was assigned the responsibility for providing a scientific and engineering system for the Electronic Proving Ground. A similar system is scheduled to be com-

pleted at the White Sands Missile Range by the end of calendar year 1972, and remote terminal equipment will be installed at nine Test and Evaluation Command boards and centers to link them through remote terminals to the five test installations.

During fiscal year 1972, there was continuing progress and refinement in another logistics management tool, the Army's Selected Item Management System (SIMS). The primary objective of this program is to manage and control selected items of materiel which represent the Army's greatest procurement costs—items such as those of high category value, heavy demand, and critical need. Rigid control over these items in the Army inventory insures better distribution and more efficient utilization as well as substantial savings. For example, estimates of cost avoidance achieved under the program ranged from $22.6 million at the start of the fiscal year up to almost $70 million as the year closed. The goal is a cost avoidance of $125 million by the end of fiscal year 1973, made possible under SIMS through back order cancellations, requisition denials, redistribution of stocks and referrals of orders, and reduced procurement. The program was publicized widely by message and pamphlet, and the services of the Inspector General and the Army Audit Agency were enlisted to make it work more effectively.

During the report year, logistical systems that support tactical Army units were continually refined and improved based upon user-recommended changes in supply and maintenance policy. The Division Logistics System (DLOGS) Class IX (repair parts) subsystem was completely revised. The system is operating in all Seventh Army divisions, the Combat Equipment Group in Europe, three divisions in the Continental Army Command, one in the Eighth Army, and a brigade in U.S. Army, Hawaii, and was extended to the U.S. Army Aviation Materiel Maintenance Center in Vietnam. As the year closed it was being installed in the 9th Infantry and 101st Airborne Divisions in the United States.

Logistics Management Information System

The Army's Logistics Management Information System (LOGMIS) is composed of a number of elements. SAAS, SAMS, ITMIS, ISSMIS, IFS—these are the acronyms, the short titles of various systems that are being developed to operate in such specialized areas as ammunition, maintenance, transportation, support services, and real property, to promote speed and efficiency in the large and complex field of modern logistics.

During fiscal year 1972, the initial design of the Standard Army Ammunition System (SAAS) was begun. When completed, a standard

management information system for conventional and special ammunition supply and maintenance will be implemented Army-wide. Four conferences were held in the fiscal year, attended by representatives from around the world, to determine the standardization approach, identify the baselines, and schedule system developmental phases.

In the opening months of the year a general system description was prepared for a Standard Army Maintenance System (SAMS). By June 1972, official guidance had been distributed covering continuing development, and general functional system requirements had been drafted for use at several operational levels. Within the Integrated Transportation Management System (ITMIS) effort, existing subsystems were examined for adoption as Army standards to reduce development and implementation time. Areas selected for initial development included water terminal operations, movements management, and administrative motor services. An Integrated Support Services Management Information System (ISSMIS) was under development to provide Army-wide support services data in a more timely and accurate manner, and work progressed on details related to property disposal, laundry and dry cleaning, and commissary operations. And finally, a functional field test of the real property maintenance activities portion of an Integrated Facilities System (IFS) was conducted, and the design subjected to an economic analysis of functional and ADP resource requirements and the costs and benefits of the system.

Facilities and Construction

The fiscal year 1972 Military Construction Appropriation Act, Public Law 92–160 of November 18, 1971, allocated $438.3 million in new obligational authority for new construction. The fiscal year 1972 Department of Defense Appropriations Act, PL 92–204 of December 18, 1971, allocated $98.5 million to Safeguard System construction. In addition, $630.1 million in unobligated balances from prior year appropriations and $10.9 million in infrastructure recoupments brought the total available for construction in fiscal year 1972 to $1,177.8 million.

The fiscal year 1972 military construction execution program authorized new starts totaling $1,123.2 million. Delays in congressional action on the fiscal year authorization and appropriation bills limited construction starts during the first half of the year to projects authorized and funded in prior years. Excluding work in Vietnam (see below), contract awards were more than 50 percent above the level of the three prior years.

A major part of the program was devoted to improvements in barracks and bachelor officer quarters and other projects that would

make the Army more attractive to volunteers. Thirty million was earmarked for work at various installations in the continental United States, including the new Walter Reed Hospital, and $12 million for work in oversea areas. On December 10, 1971, an offset agreement was concluded under which the Federal Republic of Germany would rehabilitate U.S. Army troop barracks in that country.

With the drawdown of U.S. military strength in Vietnam and the completion there of construction that had been essential to support military operations, new construction in the war zone was directed toward nation-building and security programs. As a result, the work of the Raymond-Morrison-Knudsen/Brown-Root-Jones (RMK/BRJ) construction combine was terminated on June 30, 1972.

During fiscal year 1972 the combined new construction effort of U.S. military units, (RMK/BRJ), and local contractors amounted to $58 million. Logistical installations were completed that would be required by the Republic of Vietnam to operate independently, and the highway construction program was continued to stimulate economic and social development. The line of communication program provided employment for the South Vietnamese and furthered countrywide pacification efforts by opening up previously inaccessible areas to government control. The road system is available not only to move the products of farm and factory to market but to move troops and materiel for military purposes.

The long-range military construction program, exclusive of family housing, Safeguard System, and North Atlantic Treaty Organization infrastructure, amounts to known requirements that would cost $8.1 billion. Of this total, over $5 billion is needed to replace and modernize deteriorated or inadequate existing facilities that do not meet current standards.

The Army through its Corps of Engineers provided construction support to numerous agencies and projects, including the Air Force and Navy; the National Aeronautics and Space Administration; the Department of Health, Education and Welfare; the Postal Service; the Trust Territories of the Pacific Islands; the R. F. Kennedy gravesite; national cemeteries; other Department of Defense agencies; and various foreign governments. During fiscal year 1972 the Army contracted for about $337 million of construction for these purposes.

As a part of the volunteer Army program, the Army designated approximately $325 million in new construction funds to be expended in fiscal years 1971–1973 to improve the soldier's living environment. During fiscal year 1972 the Corps of Engineers had rehabilitated approximately 11,000 barracks spaces at a cost of $4.2 million at three

volunteer Army posts: Fort Bragg, North Carolina; Fort Benning, Georgia; and Fort Carson, Colorado. The Engineer Corps also started construction totaling $36.4 million that will provide 40,000 improved barracks accommodations at installations in various parts of the world, about 29,000 of them at 29 installations in the United States. Criteria were developed during the year for the commitment of the remainder of $325 million—$284.3—in the 1973 program, to provide 17,000 new barracks spaces, improve 54,000 existing quarters, and expand recreational and morale facilities to offer the soldier a living environment comparable to that of his civilian counterpart.

Most of the troop living facilities occupied by Army troops in Germany, it may be noted, were constructed prior to World War II—many, indeed, before the turn of the century. Since 1968 a concerted effort has been made to improve barracks and dining facilities and to replace old coal-burning boilers with more reliable and economical oil-burning boilers in heating plants. Because of fund limitations, selective rehabilitation to correct the worst living conditions was emphasized; in consonance with congressional guidance, boiler conversions were limited to units that failed and could not be repaired economically. A large share of the renovation was assumed by the Germans (see below), while the United States continued to finance the procurement of supplies for the troop self-help program and facilities engineer efforts.

In the field of installations planning, one of the significant accomplishments of the year was the completion and publication of the Army Stationing and Installations Plan. This document projects forces and strengths, including all authorized personnel, over an extended period. It serves as the basis for installation master planning and the commitment of military construction funds.

Expenditures for real property maintenance activities at Army installations in fiscal year 1972 were slightly over $1.1 billion. Building space decreased by about five million square feet as some facilities were discontinued. Unfinanced real property maintenance and repair at the close of the year was approximately $396 million, 8 percent above the figure for fiscal year 1971.

Surveys of Army-controlled real estate were accelerated in the year in accordance with Executive Order 11508; by the end of the year, over 150 installations had been surveyed. Pursuant to directives of the Secretary of Defense in January 1972, the Army established a senior board to review the surveys and determine the degree of utilization and availability of properties under Army control. Special studies were requested on utilization of reserve facilities in six metropolitan areas.

No planned closures, consolidations, or realignments of installa-

tions were announced during fiscal year 1972; those forecast in previous years were carried out. The Gateway Army Ammunition Plant in Missouri, the Ravenna Army Ammunition Plant in Ohio, and the Sunflower Army Ammunition Plant in Kansas were placed in an inactive status. The Birdsboro Army Tank-Automotive Steel Foundry in Pennsylvania, the Kingsbury Ordnance Plant in Indiana, and the Sioux Army Depot in Nebraska were disposed of and discontinued as Army installations. Fort Detrick in Maryland was transferred from the jurisdiction of the Army Materiel Command to The Surgeon General, the Army Materials and Mechanics Research Center in Massachusetts was designated as a permanent installation, and the Hays Army Ammunition Plant in Pennsylvania was established as an Army installation.

The Army Base Development Board, established in October 1970, convened periodically to realign and vitalize base development planning and logistic facilities support for contingencies. The Board tasked the Engineer Strategic Studies Group of the Office of the Chief of Engineers to appraise the Army's capability to support base development for contingency operations and make recommendations for improving that capability. Army staff policies and procedures were analyzed in this connection, and a Base Development Planning Assistance Office was established in July 1971 in the Engineer Strategic Studies Group office to assist Army component commanders in base development planning for contingency operations. That office, by the close of the year, had prepared or was developing half of the twenty-five most important contingency plans, using updated concepts and techniques. The base development planning process was enhanced by a series of sophisticated computer programs.

To meet military contingencies that would require readily available mobile power-generating equipment, high-voltage electric generators in the 500- and 1500-kilowatt class with ancillary power transmission equipment are being returned from Vietnam to Army depots in the United States. These generators are being repaired and rebuilt by the Corps of Engineers. Of forty-three units returned by the end of fiscal year 1972, twelve were loaned to the Defense Supply Agency and the others were being readied for overhaul. In combination with Corps power barges, this generating equipment will be available not only for military contingencies but for natural disaster or other kinds of civil emergency. It is planned to develop a reserve of 250,000 kilowatts of mobile generating capacity under the Non-Tactical General Program.

Base operation in the Army includes installation supply and maintenance, chaplain activities, special services, military police, transportation, food, laundry, dry cleaning, buildings and grounds repair and maintenance, and other administrative housekeeping. To bring these

diverse elements under central budget control, base operations were made a separate administrative program within the operation and maintenance budget appropriation.

As the fiscal year closed, construction was about to begin on a new seven-story general hospital at the Walter Reed Army Medical Center in Washington, D.C. Walter Reed Hospital provides the most sophisticated treatment available to active-duty military personnel and their dependents as well as retired personnel and government officials. The hospital is also the Army's primary teaching facility for physicians, nurses, and other paramedical disciplines. The hospital currently admits an average of 16,000 patients annually and offers one of the largest outpatient services in the Army with an average of more than 1,000 outpatient visits daily.

The new hospital will include 1,280 beds and a wide variety of specialty clinics and diagnostic facilities in an area covering more than one million square feet. The hospital plan has been designed to accommodate the functional relationships required by the various services and departments. The architects were asked to develop the most innovative medical facility possible, with flexible structural and equipment systems to accommodate to future developments in medical technology. The building project includes related site development, demolition of existing structures, and a subsurface two-level parking facility designed to handle more than 1,000 vehicles.

Several planning bodies functioned during the year to correlate other construction programs. The U.S. Military Academy Planning Advisory Board continued to provide advice and recommendations to the Department of the Army on the military construction program required to support the expansion of the Corps of Cadets. And the National Capital Region Planning Commission, established in November 1971, addressed such problems as site selection and relocation of Army activities in the National Capital region and identification of substandard and unoccupied administrative space in the metropolitan area and at Fort George G. Meade, Maryland. The committee suggested relocations that would reduce by 746,000 square feet the administrative space used in the region, in accordance with Secretary of Defense directives.

The Homeowner Assistance Program continued during fiscal year 1972. Since enactment in 1967, a total of 9,762 applications for assistance have been received and 9,478 processed. Of these, 6,273 were settled at a cost of $17,639 million, and 1,612 mortgages were assumed for a cost of $14,210 million. There were 2,356 applications rejected, 752 submitted, and 769 settlements without payment.

Support of Operations in Europe

Complete renovation of troop living and dining facilities in some 120 of the old German barracks complexes has been proceeding since 1968. By the fall of 1971, over $62 million had been obligated for 26 kasernes. On December 10, 1971, an Offset Agreement was signed between the United States and the Federal Republic of Germany under which the German Government would fund the Army's "stem-to-stern" program and other rehabilitation efforts with 576 million deutchemarks—then the equivalent of $176 million—over a two-year period. By the end of June 1972, the U.S. Army Engineer Command in Europe had turned over to German construction authorities the plans and specifications for rehabilitation of 30 kasernes. Close cooperation between German and American authorities and German appreciation of the urgency of the program all augur well for great improvement in the living conditions of American troops in Germany.

On June 26, 1972, the House Appropriations Committee passed a continuing resolution that prohibited the expenditure of funds for Exercise Reforger, a dual-base exercise designed to evaluate and further develop techniques for the deployment of American troops—stationed in the U.S. but assigned to the North Atlantic Treaty Organization—to Europe. In 1968, some 33,000 U.S. troops were redeployed from Germany to home bases in a move to improve the balance of payments while continuing to meet the NATO commitment. The Army portion of the program was called Reforger. The redeployed forces remained under the operational control of the Commander in Chief, Europe, and committed to NATO. The equipment of these elements, under the Reforger concept, was to be maintained in Germany in sufficient quantity and state of readiness to insure that the troops could be returned to Europe if needed.

In 1969, 1970, and 1971, these units and other elements in Germany participated in exercises (Reforger I, II, and III, respectively) to test proficiency and deal with special requirements of the European Theater. Orderly disposition and execution rather than speed of deployment was emphasized. In the latest of the exercises, the 1st Infantry Division returned to Germany in September–October 1971 with two brigades to link up with the division's 3d Brigade on station in West Germany. The deploying units drew combat gear and vehicles from prepositioned storage sites in Germany and moved by road and rail to an exercise area extending from Munich to Nuernberg. Following a field maneuver, the Reforger units test-fired artillery and tank main guns before returning their equipment to storage sites. The redeployed forces then flew back to the United States.

Further Reforger exercises will depend upon the release of funds by the Congress.

The broad range of actions associated with establishment of a wartime line of communication in Europe for U.S. forces positioned in central Europe continued during fiscal year 1972. The relocation of the line of communication was necessitated by the withdrawal of France from participation in the North Atlantic Treaty Organization.

Under the military construction program, the Army continued to fund the U.S. share of the NATO Common Infrastructure Program, currently 29.67 percent of the program. Congress authorized $15 million and appropriated $14 million of the budget request in fiscal year 1972. At the end of fiscal year 1971, the unobligated balance for NATO infrastructure was $33.4 million. Recoupments in fiscal year 1972 amounted to $10.9 million; this, plus the $14 million appropriation, less obligations, left an unobligated balance of $44.1 million at the end of the fiscal year.

Security Assistance

The Foreign Assistance Act of 1971, as amended, authorized $545 million for total triservice obligation authority for military assistance in fiscal year 1972. The act contained a new restriction which applied to most recipients of grant aid and excess defense articles; such countries must deposit in a special account in host country currency, to the credit of the United States, an amount equal to 10 percent of the value of grant aid, or, in the case of excess defense articles, 10 percent of the fair value as determined by the Secretary of State.

The Army materiel portion of the Military Assistance Grant Aid Program, including excess defense articles, excluding Laos and Thailand, amounted to $881 million for fiscal year 1972, covering varying levels of support for 25 countries. In addition, undelivered balances of $705 million were carried forward from prior years, for a total fiscal year 1972 sum of $1,586 million. Deliveries during the year totaled $843 million, leaving an undelivered balance of $743 million at the end of the year. This balance represented the value of undelivered materiel carried forward to fiscal year 1973 programs; in some instances, such as materiel excess to Army needs, the figures represented acquisition cost rather than current value.

Military assistance for Vietnam, Laos, and Thailand was again excluded from the fiscal year Military Assistance Program (MAP) appropriation; assistance to those countries was funded under regular military department appropriations. The Foreign Assistance Act, signed by the President on February 7, 1972, states that military assistance to Thailand would be provided only under this Act or the Foreign Military

Sales Act, effective July 1, 1972, and would no longer be included in the regular military department appropriations.

To supplement limited MAP funds and to make maximum use of Army assets available in excess of approved force acquisition objectives, transfer of these excess defense articles to MAP at no cost except for packing, crating, handling, and transportation, and for rehabilitation and repair when required, continued during the reporting period. Excess materiel with an acquisition value of $162.3 million was delivered to recipient MAP countries during the year. Approximately $15.8 million (acquisition value) in excess materiel was delivered to Laos and Thailand during the year.

The government of Iran requested that U.S. grant aid be terminated on July 1, 1972. It expressed a willingness to assume responsibility for the operating expenses previously incurred under grant aid.

The President in 1971 authorized a triservice grant aid program of $3 million for Ceylon. The Army's portion of $2.2 million covered commercial pickup trucks, radios, helicopters, tractors, and graders, all except the trucks delivered by June 1972.

The Republic of Korea completed the second year of an austere $1.5 billion five-year modernization program to bolster her forces and offset a reduction of U.S. forces in Korea. The Army-funded portion of the program was $83.6 million. This amount was reduced from the approved State/Defense program of $127.1 million as a result of the over-all congressional reduction of the Foreign Assistance Program for fiscal year 1972.

The Foreign Assistance Act of 1971 established a ceiling of $341 million upon assistance to or for Cambodia. The Military Assistance Grant Aid portion of the ceiling for fiscal year 1972 was $135.4 million. Under this latter program, Ethiopia received helicopters, general purpose vehicles, small arms, ammunition, communications equipment, and repair parts to a total grant of $4.7 million, and Jordan received a modest grant as well. The Secretary of Defense also authorized materiel grant aid totaling $2.5 million for seven Latin American countries.

The Spanish Base Rights Agreement, signed in 1970, was amended by a memorandum of understanding of March 9, 1972, under which the United States agreed to provide all quantities of end items included in the original agreement plus ancillary equipment valued at $3.9 million. This was accomplished without increasing the original dollar ceiling.

And, finally, Turkey was provided materiel and services valued at $97.1 million, of which $52.7 million was in excess materiel.

During the fiscal year the Army sold materiel and services valued at $655.3 million to fifty-seven countries and five international organi-

zations. In conducting its sales activities, the Army adhered to the policy that materiel readily available through commercial sources would be sold directly by American industry to the recipient. Within the year a total of 814 outstanding sales cases were balanced and closed out in supply records.

High-ranking military personnel from six allied nations were brought to the United States during the year for orientation on new military systems and equipment of mutual interest in Free-World defense. Briefings were conducted in Europe for NATO personnel on Lance Field Artillery Missile System and the improved Hawk Missile System; the latter briefing was also furnished to Spanish, Iranian, and Japanese authorities.

The Army participated in eleven co-production programs with three foreign countries and with NATO. Under this program, and based upon bilateral agreements, a foreign nation may assemble or manufacture major end items or weapon systems of U.S. origin. The programs were valued at $610.8 million, with expenditures for goods and services in the United States valued at $301.3 million. Participating were the Republic of China, Italy, and Japan, as well as NATO. The U.S. items being co-produced include the M113 armored personnel carrier family of vehicles, the M109 self-propelled howitzer, helicopters, wheeled vehicles, the Hawk and Nike Hercules missile systems, a light antitank weapon, and small arms.

In the field of co-operative logistics, the Army maintained supply support arrangements with sixteen allied and friendly nations and with the NATO international organization. These programs provide participating countries with continuous follow-on support for major end items and weapon systems on a reimbursable basis. The Army provided support for conventional weapons and vehicles and the Sergeant, Pershing, and Hawk missile systems to a total of $144.7 million during the year.

International logistics management activities were concentrated on providing timely logistical support to friendly foreign governments in a period of sharply declining resources. While U.S. Army procurement and rebuild programs were being reduced in consonance with over-all troop reductions, foreign customer requirements for military equipment were increasing. To lessen the impact of reductions in resources, management improvements and prompt reaction were emphasized. The time phasing of requirements was highlighted to insure stability in production lines, while attention was centered upon identifying and planning for a progressive phase-out of support of major items which could be transferred to U.S. industry.

Environmental Protection and Preservation

In fiscal year 1972 the Army continued to pursue the objectives set out in the National Environmental Policy Act of 1969. In general, primary attention was given to controlling air and water pollution at Army installations, as required by Executive Order 11507, and incorporating the environmental factor into the Army's normal planning process.

The requirement to assess the environmental impact of all Army programs has become the most significant element of the environmental effort. Environmental considerations have been brought into the decision-making process through the written evaluations required of a program's impact upon natural resources. Until recently, the planner and decision-maker weighed primarily the operational and cost factors of various alternatives in selecting a course of action; the environmental factor has now been added to the equation. Although numerous assessments have been made to date, it has only been necessary for the Army to prepare and submit sixteen impact statements. These have been connected with complex construction projects, the demilitarization of munitions, and selected research and development projects.

To develop increased awareness throughout the Army concerning the environmental issue, and to insure effective response to rapidly evolving regulations and environmental quality standards, an education and training program was developed during the year. Environmental subjects are being added to the soldier's basic training program; through manuals and posters, drivers and mechanics are being taught that a properly timed and operated engine cuts pollution; environmental workshops were held throughout the United States for managers and engineers.

Air and water pollution control measures were working effectively during the year. New or improved sewage treatment plants, modern incinerators, and better controlled heating plants were being built or awaiting Congressional approval and funding. Approximately $140 million has been invested in facilities for this purpose to meet current standards, and another $160 million of work still remains. If stricter emission regulations are imposed by the states, and indications are that this will happen, additional funds will have to be programed in future budgets.

Pollution controls for Army vehicles depend, in large measure, upon what the automotive manufacturer advances to produce clean engines. No major problems are foreseen in meeting emission standards in new equipment over the next two years. The major problem comes in 1975 when emissions must be reduced by 90 percent over what they are today. To solve this problem, the Army Materiel Command is working closely with engine manufacturers and continuing to develop the strati-

fied charge engine. At the same time, attention is being given to cleaning up older engines through product improving and refitting. Older engines are being tested to see what pollutants are produced and what modifications are needed, and various types of gasoline, including those with low lead content, are being tested.

Solid waste disposal has presented no major problem. For many years the Army has employed the sanitary landfill, now regarded to be ecologically safe for domestic-type wastes. On the other hand, because of the emphasis on all types of waste disposal, it has become necessary to address such unique problems as the disposal of explosive contaminated wastes by developing special incinerators for ammunition plants. Highly sophisticated and safe procedures have been required to dispose of large stocks of chemical and biological weapons, especially since ocean dumping has been considered to be an ecologically unsafe procedure.

Another element of the solid waste disposal picture is the requirement to salvage materials that may be returned to the manufacturing process. These efforts have only just been started, but the Army has increased its use of retreaded and rebuilt tires, and many useful chemicals have been recovered as a byproduct of the extensive munitions demilitarization program.

Army posts have established recycling centers for paper, glass, and cans, similar to those found in civilian communities, and have co-operated with local community organizations in joint programs.

In the field of preservation, the Army has joined in the national effort to preserve our historical and cultural heritage. A number of military installations such as West Point, New York; Fort Monroe, Virginia; and the Presidio of San Francisco, California, have been registered as national historic sites.

In addition to preserving landmarks, more attention has been given to beautification—to making posts more attractive, modern, progressive. In the multimillion dollar barracks and family housing construction programs, there has been a deliberate departure from institutional architecture of the traditional style. More emphasis has been placed upon modern master planning and landscaping. At the same time, land and forest management and fish and wildlife considerations have been brought to the fore.

Research and development related to pollution control are in the Army's environmental program. Some of the areas under investigation are biodegradable packaging materials, emission standards for Army vehicles and aircraft, waste and wastewater treatment procedures, and low fuel consumption and low emission engines such as the stratified charge plant for the quarter-ton truck.

Much has been accomplished under the Army's environmental program to date, and substantial contributions have been made toward achieving national goals in this field. Institutionally and nationally, of course, much remains to be done.

Memorial Affairs

Since August 1, 1962, the Office of the Chief of Support Services has supervised the operation and maintenance of the National Cemetery System, has procured government headstones and markers, and has exercised staff supervision over post cemeteries and over the care and disposition of remains and the personal effects of deceased Army personnel. The office was also responsible for a number of other Army-wide logistical support services. On May 15, 1972, the Office of the Chief of Support Services was discontinued and the U.S. Army Memorial Affairs Agency was established to handle the death-related functions outlined above. The organizational change came as the work load connected with the disposition of remains and the personal effects of deceased Army members had been appreciably reduced by the curtailment of U.S. participation in the Vietnam War.

Ten Army-operated mortuaries located overseas provided mortuary services for uniformed personnel, eligible civilian employees, dependents, and certain other categories of decedents; two of these were in Vietnam —at Tan Son Nut and Da Nang. Remains were received at three ports of entry in the United States—Oakland Army Base, California; Fort Hamilton, New York; and Dover Air Force Base, Delaware. Posts, camps, and stations in the continental United States contracted for mortuary service as required. Worldwide, 4,952 remains were handled under the Army Mortuary Program in fiscal year 1972.

As in past years, the Army had some residual mortuary activity from past wars. The remains of five World War II dead were recovered and identified, three from an aircraft lost in New Guinea on March 12, 1944, and two from isolated and unmarked graves in Holland, members of the 101st Airborne Division who were lost on October 5, 1944.

Operation and maintenance of national cemeteries was heaviest in those located in heavily populated areas; for example, Long Island National Cemetery where 11,624 burials were made out of 36,449 interments in the 84 cemeteries operated by the Department of the Army during the year. In the area of development, maintenance, and construction, the major demands centered upon Arlington National Cemetery, Arlington, Virginia. Arlington serves as a pilot in a recently adopted program of master planning for selected cemeteries. This was initiated at Willamette National Cemetery, Portland, Oregon, during the year, and other cemeteries will be added.

The City Point National Cemetery, Hopewell, Virginia, was closed for future interments except for combat dead or reserved and single gravesite cases. Forty national cemeteries under departmental jurisdiction have now been closed except for these categories.

There were 207,359 headstones and markers procured during the year—54,571 marble, 71,956 granite, and 80,832 bronze, with 38,073 destined for national or post cemeteries and 169,286 to be placed in private cemeteries.

Troop Support Operations

The morale of the soldier and of his family is closely connected to the quality of food, commissary, laundry, and clothing services provided by the military. This is an important area in the effort to develop a volunteer Army, and a number of developments during fiscal year 1972 are worth noting.

A Subsistence Operations Review Board was organized and chartered by the Army in December 1970. Its purpose was to give impetus to and revitalize the Army Food Program. The board submitted its first report in August 1971, making 153 recommendations and suggestions concerning dining facilities, subsistence supply, issue commissaries, and commissary sales stores. During fiscal year 1972, 107 of these recommendations were adopted or implemented, leading to vastly improved service to the soldier and his family.

On March 23, 1972, Army installations all around the world were directed to establish commissary store advisory councils to advise the commissary officer and the installation commander on such operational matters as stockage, pricing, quality, operating hours, employee courtesy, and sanitation. The councils consist of active and retired officers and enlisted men, widows, dependents, and other authorized patrons. Customer satisfaction improved considerably after the councils were established.

Automatic data processing systems (0488) are scheduled to be installed in 100 installations; the system was operational in 92 commissaries by the end of fiscal year 1972. Four additional program applications will be incorporated into the system by June 1973.

The pilot program to evaluate the concept of supporting six commissaries in Europe with direct containerized deliveries of brand name resale subsistence from the continental United States was completed successfully in the summer of 1971. By August the Defense Supply Agency, the Air Force, and the Army had completed arrangements to expand the program to thirty-five stores and one depot in Germany. This was completed in April 1972, and about 85 percent of Europe's brand name resale nonperishable tonnage is received through this

system. Planning for further expansion of this Direct Commissary Support System was begun in February 1972, to cover commissaries in England and the Pacific region.

To improve customer satisfaction even further, a Commissary Store Marketing Data and Guidance pamphlet was published in March 1972. This brings the commissary management and marketing policies into line with those of modern commercial retail chains and will insure customers of a wider selection of items and allocation of shelf space based upon sales volume.

In addition to the attention accorded commissary activities during the year, detailed plans were made to modernize the Army Food Service Program. A major element of this program is the central food preparation concept. Natick Laboratories in Massachusetts conducted a test at Fort Lewis, Washington, of this concept. Food was prepared centrally and transported to satellite dining rooms; used tableware was returned to a central warewashing facility. The test indicated that central preparation and washing provided uniform quality, decreased food costs, and reduced manpower, equipment, and maintenance requirements. The concept was adopted by the Army as a way to achieve more economical and efficient food service and greater patron satisfaction. It will be expanded during the period of fiscal years 1974–1978, with construction of central facilities to commence at two installations in the continental United States in 1974.

In December 1971, the Department of the Army directed that each command submit detailed plans for upgrading dining facilities. These were evaluated at the Troop Support Agency, Fort Lee, Virginia. Food service facilities have been modernized at Army facilities around the world as a result of strength reductions and the increased availability of equipment. Existing equipment was inventoried during the year, serviceable items were redistributed, and commands were provided with lists of new equipment against which to plan for gradual transition to more modern food service techniques comparable to those used in first-class commercial cafeterias.

Operational rations also came in for attention during the year with actions to rotate war reserve subsistence stocks. Commissaries were authorized to restructure the composition of theater reserve contingency stocks and to apply 50 percent of peacetime operating stocks against war reserve requirements. A study of the problems of rotating contingency stocks was completed in November 1971, followed by a conference involving major commands in January 1972. A number of recommendations were approved, including the sale of operational rations at reduced prices to other government agencies, commissary patrons, and the Vietnamese armed forces; donation of excess rations to other

government agencies and to programs for the needy; development of a data collection system to cover location, condition, and age of stocks worldwide; and a training program for food service personnel to cover the preparation of operational ration components. During the year, marginally acceptable B ration components were eliminated from Army stockage, excess stocks were reduced by sale and donation, and the stock rotation requirement was reduced.

One of the most effective innovations in improving soldier morale has been the program under which the job of kitchen police was transferred from the soldier to civilians. Use of appropriated funds to pay civilian KP's began overseas in fiscal year 1971. In fiscal year 1972, $33.9 million was spent for this purpose. Early in the year, Army commands reviewed their requirements, and the estimated $99.4 million total requirement, subsequently reduced to $66 million, was included in the 1973 President's budget. The switch to civilian KP's is part of the over-all effort to improve professionalism and increase the desirability of service life and is a key factor in the service program to achieve an all-volunteer force.

Another experiment in ways and means to enhance service life in the food service area was to contract for the operation of the Tri-Service Dining Facility at Fort Myer, Virginia. Here a civilian contractor provided the personnel, management, and food for the whole operation, on a one-year contract with an option to renew for two additional years. The contract facility began on July 1, 1971, and as the fiscal year closed it was to be renewed in order to gather more data for evaluation of the feasibility of providing similar service in military facilities in other large metropolitan areas.

New procedures for issuing and accounting for field rations, authorized on an optional basis in March 1971, were implemented widely during fiscal year 1972. The Army Ration Credit System, as the new method is called, offers increased flexibility in adjusting local menus to meet the preferences of those who use the dining facilities. Under the system, mess stewards are authorized to requisition designated foods in required quantities within monetary limitations. Mess stewards have thus been able to schedule food specialty nights and provide short orders and ethnic foods. The result has been to increase the patronage of dining facilities and certainly to improve troop morale. The system is based on ration credits accrued through head count, and is not to be confused with the Monetary Allowance System (the old garrison ration) where actual cash is involved.

Another area that came under attention in recent times was laundry service. To improve this service, which plays a part in soldier satisfaction, commands were directed to provide additional spaces and funds.

The intention was to improve the quality of laundry service provided to patrons participating under the payroll deduction plan. Among new procedures that have been or are being implemented: conversion from permanent ink marking of items to temporary marking with removable strips; authorization of replace folding and bundling of laundry by hanger service; more accessible pickup and delivery service; extension of payroll deduction privileges to officers; conversion of monthly laundry rosters from manual to computer preparation; reduction of laundry service from four to three days.

The time-consuming requirement to pay separately for each bundle of laundry created dissatisfaction among patrons. To simplify this problem, monthly payroll deductions were authorized for patrons availing themselves of the service. Financial accountability is maintained at Fort Benjamin Harrison, Indiana, where the funds become automatic reimbursements to the servicing installations.

Equipment replacement is a major consideration in laundry service. As standard washing machines require hand loading and unloading, a revolutionary new washing concept called "continuous flow" offered an opportunity to modernize laundry operations. Requiring manual handling only in the loading, this new washer automatically meters in all supplies, washes, extracts, and conditions the load without human intervention. Three of these machines were being readied as the year closed. They will eliminate the need for unskilled and hard-to-recruit employees who load and unload washing machines.

Over the past two years, new laundry techniques have been introduced which radically alter the traditional finishing methods for garments. Synthetics last longer than traditional materials and are easier to process and to press. A unique new finishing machine is called a "hot box" or "steam tunnel." Garments are fed into the machine, either wet or partially dried, on slow-moving conveyors; blasts of hot air or steam relax the fibers, and clothing emerges wrinkle-free on hangers, ready for return to patrons. The machine handles up to 2,400 pieces per hour, and it eliminates the need for conventional conditioning and pressing on flathead equipment and for the labor force to perform it—the most expensive and difficult to recruit because of the unpleasant nature of the work. Present budget projections envision the need for about $1 million annually to modernize laundry operations.

In the clothing field, the Army has developed two prototype summer uniforms to replace the cotton khaki uniform. One is a 65/35 blend of polyester and rayon with a durable press finish, the other is a 50/50 blend of polyester and cotton with the same finish. Both will be tested under the supervision of the U.S. Army Infantry Board at Fort Benning, Georgia, with that location and Washington, D.C., as wear areas. Tests

were begun in the last quarter of fiscal year 1972 and will be completed by the fourth quarter of fiscal year 1973.

The Army also developed a durable press fatigue uniform to replace the standard cotton sateen type, and this will be tested in fiscal year 1973.

X. Research and Development

Budget

The Department of Defense Appropriation Act for fiscal year 1972, Public Law 92–204, appropriated $1,787.7 million for the Army's research, development, testing, and evaluation (RDT&E) program, as compared with budget requests of $1,950.0 million. The reprograming of $51.9 million in unobligated balances carried over from prior years and the transfer of $12.0 million in Office of the Secretary of Defense emergency funds brought the total amount of new obligational authority to $1,851.6 million, of which all but $227.0 million had been obligated by the end of the fiscal year. An additional $365.0 million in prior year authorizations was carried over into fiscal year 1972. Public Law 90–204 provided that all RDT&E funds carried over from fiscal year 1971 and prior years would expire on June 30, 1972, and only $57.0 thousand of the carry-over obligational authority was lost at the end of the year.

Management and Support Activities

During the past year, remote computer terminal facilities were established in the Office of the Chief of Research and Development at the Pentagon and at the U.S. Army Research and Development Information Systems Office in the Highland Building, Arlington, Virginia. The facilities, which are housed in radio-frequency-shielded enclosures equipped with electronic encrypting devices in order to handle classified RD&T information, provide the Chief of Research and Development and his staff direct access to scientific and technical information from the data bank at the Defense Documentation Center and fiscal and management information from the data bank at the U. S. Army Management Systems Support Agency.

A major thrust of the RDT&E effort is to assure that the Army maintains combat superiority through the development and acquisition of superior materiel systems at the lowest possible cost. In this regard the Department of Defense and the Army have placed increased emphasis on reliability, availability, and maintainability as a means of reducing procurement, operations, and maintenance costs. The Defense Systems Acquisition Review Council (DSARC) specifically addresses these factors during each major system review. The Army, in response

to a Department of Defense directive on the acquisition of major defense systems, instituted materiel acquisition guidelines late in the fiscal year that are designed to shorten development time, minimize costs, and assure adequate performance. Materiel developers are now required to prepare and publish a co-ordinated test program for all new RDT&E projects. This program insures that adequate testing is performed, eliminates redundant testing, and provides that all tests are fully co-ordinated to the satisfaction of all interested commands or agencies and that conflicts ascertained during the testing phase are resolved.

A number of laboratory management improvement actions were initiated during the year. One corporate laboratory and the laboratories of three of the Army Materiel Command's commodity commands were selected to inaugurate single element funding, a technique that was successfully tested last year and which shows promise of eliminating the administrative burden and programing inflexibility associated with exploratory development funds. Twelve Army laboratories were nominated to join four others already participating in the Department of Defense demonstration project on reconciliation of work load, funds, and manpower (REFLEX). This undertaking tests the concept of permitting laboratory directors to manage their resources by fiscal controls alone rather than by administratively separated manpower and fiscal controls. Also, an Army Materiel Command laboratory posture report is being prepared for the first time. The report, which is scheduled for completion in September 1972, will highlight laboratory contributions to the inception, development, and fielding of material during the fiscal year. It will include innovations in management, advances in the quality of the technical staff, and improvements in technical productivity and responsiveness.

Research Activities

The Army's exploratory development program investigates, evaluates, and develops defense related technologies through the prototype phase. In November 1971, overview responsibility for the program shifted from the Director of Army Research and the Director of Developments to the Director of Army Research, alone. The Director of Army Research conducts reviews, makes recommendations to assure that the total exploratory development program is balanced and responsive, co-ordinates and prepares recommendations for special programs, and prepares budgetary requirements for the over-all program. The Director of Developments is responsible for individual programs assigned to him.

The Office, Chief of Research and Development (OCRD), continued to disengage from contract operations research study manage-

ment. During the last quarter of 1972, the Army Study Advisory Committee agreed that responsibility for staffing and monitoring operations research studies would be transferred from OCRD to the respective agency sponsors within the Army Staff. Also, OCRD has negotiated a draft support agreement with the Army Materiel Command (AMC) which would transfer responsibility for contracting operations research studies from OCRD to the AMC Harry Diamond Laboratories.

Congressional reductions in funds for studies conducted by the Research Analysis Corporation (RAC), a federal contract research center, caused a substantial cutback in the RAC work program approved by the Army Study Advisory Committee in June 1971. Following discussions between RAC's Board of Directors and the Under Secretary of the Army on RAC's future in light of the reductions, agreement was reached that the corporation should be sold. At the end of the fiscal year negotiations were well underway for the sale of RAC to the General Research Corporation.

The biological defense research activities conducted at the U.S. Army Biological Defense Laboratory, Fort Detrick, Maryland, were terminated at the end of the fiscal year. The Fort Detrick facility was made available to the Department of Health, Education, and Welfare for use by the National Cancer Institute in the Conquest of Cancer Program.

Following the disestablishment of the Defense Special Projects Group (DSPG) in June 1972, the Army took over 28 of the 88 DSPG sponsored projects then under way. These research and development efforts will be integrated into the Army's physical security work and the Remotely Monitored Battlefield Sensor System (REMBASS).

The Army Research Council, in response to a request by the Assistant Secretary of the Army (Research and Development), undertook an assessment of the relative research, development, testing, and evaluation posture of the Soviet Union and the United States. The study, which was completed in January 1972, was structured around the fourteen materiel objectives contained in the Army Strategic Objectives Plan. Continuing work on the initial assessment is being handled by the Net Technical Assessment Team, Plans Division, OCRD.

During the year, a study on the Army's utilization of space technology, conducted jointly by the Offices of the Deputy Chief of Staff for Military Operations and the Chief of Research and Development, was undertaken to define the Army's interest in space technology and to identify and fully utilize the opportunities space endeavors present for improving Army capabilities. The Vice Chief of Staff approved the study and directed that action be taken to exploit space technology in meeting the Army's needs. A space-related research and development

program will be developed during fiscal year 1973 to meet this requirement.

Several significant developments in the Department of Defense Food Research Development Testing and Engineering Program were registered during the past year. A project designed to test improvements in Armed Forces food service operations was concluded at Fort Lewis, Washington. This experiment is expected to lead to a number of improvements in Army food service, including wider application of central preparation concepts and better menu planning for installations. The flexible packaging effort for operational rations is in the final stages of development. Contracts with Swift and Company and several other firms have led to the establishment of an automatic production line to form, fill, seal, and heat-process flexible packages for a variety of ration items. Recently developed techniques for the reversible compression of dehydrated foods were successfully applied in production tests of specific foods. The services have adopted compressed peas and are field testing other foodstuffs. Reversible compression techniques have also been utilized in the development of a small lightweight food packet for the Marine Corps. In addition, animal feeding tests of irradiated beef were begun to determine whether such meats meet Food and Drug Administration standards.

In response to a growing national concern over protection of the environment, the Army is making special efforts to identify and control polluting emissions generated by Army activities. Special studies are required to understand the magnitude of the problem, and research must be conducted to develop effective control measures. Many of these investigations are just getting under way and will be greatly expanded during the coming year. These include development of better instruments for measuring pollutants, studies to determine the health and environmental effects of special Army waste materials, and development of equipment to control air and water pollution, solid wastes, noise, and radiation at military installations. Even though the research effort was in its early stages when the year closed, there were notable accomplishments. A biological process that uses a mutant strain of fungus to convert old newspapers to sugar has been developed, as has been a novel, single-tank complete sewage treatment plant for use in treating waste in cold regions. A jeep engine design has been modified so that the emissions produced are less than those allowed by federal standards scheduled for implementation in 1976. Also, noise from certain helicopters has been reduced sixteenfold through design changes and the addition of sound reducing materials.

OCRD, other Army staff agencies, and the Army Materiel Command are participating in a program, sponsored by the Office of the

Deputy Chief of Staff for Personnel, that deals with noise-induced hearing loss within the Armed Forces. The seriousness of this problem, which has long been recognized by military and civilian audiologists as a major health hazard, is attested to by Veterans Administration figures showing that in 1970 approximately $52 million was dispensed for hearing loss incurred as a result of service in the Armed Forces, and that 20 percent of all Army dischargees are entering claims for hearing loss. The coordinated hearing loss program is concentrated in four basic areas, the Office of the Surgeon General's (OTSG) hearing conservation program, an OCRD study on the adverse effects of sound on the soldier, the engineering aspects of sound reduction at its source, and the development of devices and materiel to protect hearing. A revised materiel design standard that will bring allowable noise levels for the development of AMC equipment into line with standards established by the OTSG to insure adequate hearing conservation and protection will be staffed for publication in fiscal year 1973.

The U.S. Army Tropic Test Center, Fort Sherman, Canal Zone, provides the RDT&E capability required to isolate the effects of a tropic environment on materiel being considered for Army use. During the past year the center planned, conducted, and reported on engineering design, engineering, check, confirmation, and surveillance tests. Considerable personnel support was required in order to test more complex materiel items. In addition, the center performed exposure tests on such items as paint, metal, cloth, and electronic components, as a service to developers. An extensive research program on the natural physical and biological environments of the Canal Zone, begun under the auspices of the Army Research Office and the Advanced Projects Research Agency, is continuing as part of the Department of the Army's In-House Laboratory Independent Research Program.

The Military Construction Research and Development Program is directed toward the improvement of the economy and effectiveness of facilities design, construction activities, and operation and maintenance activities pertaining to the Army's existing and proposed real property assets. This program addresses the R&D needs associated with the operation and maintenance of permanent Army facilities valued at almost $55 billion, an annual Army new construction program of more than $0.5 billion under MCA appropriation, and an annual Army expenditure of $1.1 billion for operation and maintenance of existing facilities. The research, development, testing, and evaluation budget of $3.2 million for fiscal year 1972 allowed investigation into such areas as permanent construction materials and techniques, military construction systems development, engineering in cold environments, nuclear power applications, extraterrestrial research, and basic research in mili-

tary engineering and construction. Other related research activities included investigation into special problems associated with cold regions construction, environmental concerns, and hardened facilities design and construction.

Significant progress has been achieved in many areas, including industrialized construction of bachelor enlisted quarters and bachelor officer quarters; nondestructive testing techniques for airfield pavements; increased automation in the control of wastewater treatment plants; control of cracking in pavement overlays; economic studies of flooring materials; identifying, reporting on, and evaluating facility deficiencies; pavement construction in permafrost; defining standards for foundation design based on precise definition of frozen soil structural response to static and dynamic loads; handling sanitary wastes; and in the development of a computer-aided specification system.

In the area of environmental quality, gains have been registered in protecting the environment during contract construction operations. In addition, an extensive program for enhancing environmental quality in the construction and operation of military facilities has been developed with the co-operation of other defense agencies, the Environmental Protection Agency, federal, state, and local agencies, and the private sector. Implementation of this program is scheduled to begin in fiscal year 1973.

Progress in the area of hardened facilities has led to the definition of stress-strain-time relations that govern ground shock in earth materials; development of analytical procedures for calculating the stresses and motions within earth masses induced by nuclear detonations; verification and establishment of confidence levels pertinent to the accuracy of free field prediction procedures for use in the design and analysis of protective structures; and improved procedures for the collection and analysis of empirical ground motion data.

In the Military Engineering Research and Development program, progress was made in research efforts designed to correlate the impact of soils, vegetation, and terrain variation on the performance of seismic sensors used for battlefield surveillance and anti-intrusion systems. A seismic sensor system mathematical model was developed that will vastly improve our ability to interpret sensor signals as to the seismic wave trains induced in soils by the passage of men and vehicles. The model has been validated through a series of field tests. In related developments, prototype seismic intrusion detector performance maps that will aid field commanders in the employment and emplacement of sensors and improve the interpretation of sensor signals were prepared for further testing in Europe.

Research has continued on new concepts for roadway base construc-

tion that employs a membrane-encapsulated soil layer as a substitute for high quality crushed rock or granular base course materials. Experimental sections of this type road are being field tested. This construction concept, as well as experimental thin-bonded, multilayered pavement sections, are being considered for use on alert runways at Air Force bases. It is estimated that utilization of these concepts could result in a saving in construction costs of approximately $20 million. Research also was initiated on the use of mechanical cutters and liquid explosives for rapid excavation of frozen ground and rock.

Development of designs for new military personnel shelters that resist specified overpressures induced by nuclear weapon blast continued during the year. "Stand-off" distance charts for the placement of triggering screens around and above protective structures for detonation of incoming enemy explosive rounds were also developed. A new series of alternative revetment designs was developed to protect parked aircraft and above-ground petroleum, oil, and lubricants storage. Studies on the terminal ballistic properties of frozen materials (snow, ice, and soil) for employment in fortifications and protective structures were continued.

Cratering tests to develop improved techniques for chemical explosive applications in military engineering and to simulate the effects of atomic demolition munitions so that crater prediction data related to weapon yield, depth of burst, geological conditions, and various borehole stemming techniques might be established and refined, were continued. In this regard, a series of chemical explosive cratering test shots, entitled DIAMOND ORE, was conducted at Fort Peck, Montana, during fiscal year 1972, and another phase will follow in fiscal year 1973. Another cratering series, called Middle Course, was initiated at Trinidad, Colorado, to establish cratering curves for sandstone and develop a tracer technique to determine radioactive fallout.

A major change in the Military Engineering Research and Development Program came with the establishment of the Defense Mapping Agency (DMA). CONUS base plant facilities and mapping programs were transferred to DMA, while the Corps of Engineers retained responsibility for conducting research and development programs dealing with expansion of the technological base in the areas of mapping, charting, geodesy, and military geographic intelligence. (See Chapter IV.)

Development Activities

Substantial progress was made during fiscal year 1972 in the fields of surveillance, target acquisition, and night observation (STANO). Advances in far-infrared technology have reduced the size, weight, and complexity of thermal imaging sensors without sacrificing sensitivity,

to the point that night vision sights are now being developed to fit the periscopes currently used on combat vehicles. Work is under way on a TOW night sight that will permit nighttime use of this weapon at daytime ranges. The requirement document for the Remotely Monitored Battlefield Sensor System (REMBASS) was refined, and contracts for investigation and developmental hardware models of selected REMBASS items were awarded. These models will be used to determine the best components for integration into the engineering development phase of this system. Also, the Army initiated engineering development of a countermortar radar, the AN/TPQ–36, and continued to develop a counterbattery radar, the AN/TPQ–37. Testing of these hostile weapons location devices is scheduled to begin in fiscal year 1975.

A number of gains were registered in the terminal homing program, which consists of four projects to direct fire to point targets at ranges extending from one forward edge of the battle area back to the enemy's rear area.

Work continued on laser illuminator/designator units capable of being hand held, ground mounted, or borne by helicopters. The feasibility of using such designators with direct and indirect fire weapons launched from the ground or by helicoptor was demonstrated in a successfully concluded exploratory development program.

Funds were expended to initiate the development of hand-held and ground-mounted laser illuminator/designators and to define system integration for the airborne designator.

The Cannon Launched Guided Projectile (CLGP) project has the objective of developing terminal laser guidance that will enable 155-mm. projectiles to hit stationary and moving tanks and armored personnel carriers. Two contracts for a feasibility demonstration of the CLGP were awarded in February 1972. Phase I (15 months) includes component manufacture and testing. Phase II (10 months) will consist primarily of fabricating and testing twelve fully functional prototype projectiles from each contractor.

The Heliborne Fire and Forget Missile (Helifire) is being developed to provide current and future attack helicopters with the capability to attack both stationary and moving targets. During fiscal year 1972, flight and operational tests were initiated which will determine the technical and operational effectiveness of the laser guided missile system.

Radar area correlation, the fourth terminal homing project, is designed to demonstrate the technical feasibility of configuring radar area correlation components in a helicopter-borne correlator to enhance the accuracy of the Pershing and other missile systems. If the prototype

program proves successful, radar area correlation will be demonstrated on actual missile flights.

Close interservice co-operation in the terminal homing program assures that test, technical, and operational data are exchanged. For example, the Army's lasers are co-ordinated with the other services in such technical aspects as frequency and pulse width in order to provide a capability for guiding Air Force and Navy missiles, as well as Army ordnance.

Following approval by Congress of a $35 million action for restructuring the Cheyenne program and the signing of new contracts in August 1971, rapid progress was made in the development of the Advanced Aerial Fire Support System. The first TOW missile was fired from the Cheyenne at night on September 28, 1971. Successful preliminary evaluation tests of the TOW missile system and night vision systems were completed in February 1972, while successful operational tests of the Cheyenne were concluded in May 1972. Concurrent with the very active flight testing of the Cheyenne, the final design and fabrication of the advanced mechanical control system was completed. Installation of the new system on the Cheyenne had not been completed by the end of the year.

Congress terminated the XM803 (MBT70) tank development program in December 1971, but appropriated $20 million for the establishment of a new program designed to produce a less sophisticated, less complex, and less costly tank than envisaged under the discontinued program. Every effort is being made to insure that maximum benefits are derived in developing the new tank from the investment made in the XM803 and predecessor programs, for which $305.1 million had been expended in research and development costs, in developing the new tank.

The four and one half year advanced development phase of the SAM–D system was successfully concluded early in 1972 with the functional demonstration of experimental system hardware performance by means of a combination of tests, simulations, and analyses. Following a review by the Defense System Acquisition Review Council and approval by the Deputy Secretary of Defense, the project entered the enginering development phase in late March. Progress to date has included the design release and fabrication of many hardware items.

In other missile system actions, the Stinger program entered full-scale development at the close of the fiscal year. This program is designed to replace the Redeye with an equally reliable and accurate but more versatile shoulder-fired air defense missile. It capitalizes on more than fourteen years of experience with Redeye and more than five years of advanced development of critical components applicable to

Stinger. Also, engineering and service tests were completed on the Lance delivery system. Due to Congressional action deleting funds for a conventional warhead, the development program for a nonnuclear Lance was halted in December 1971.

A number of significant actions relating to ongoing helicopter projects were taken during the year. The heavy lift helicopter (HLH) component development program progressed satisfactorily, and by year's end negotiations were under way with Boeing-Vertol for the production of an HLH prototype. Following approval of the Utility Tactical Transport Aircraft System (UTTAS) materiel need document, a contract was signed with General Electric Company for the development of the UTTAS powerplant. UTTAS airframe development proposals submitted by civilian contractors are still under consideration. During fiscal year 1972, twenty-two contracts involving seventeen separate projects in the Advanced Helicopter Development program were awarded, including four contracts for the development of a small turbine gas generator and another contract for the production and flight demonstration of two advancing-blade concept aircraft. Two joint Army and National Aeronautics and Space Agency (NASA) projects were initiated during the year to further the advanced helicopter development effort. These were the Tilt Rotor Research Aircraft and the Rotor Systems Research Aircraft (RSRA) programs. Memorandums of Agreement were signed by the Army and NASA in November 1971 authorizing a joint development and testing effort. Preliminary design studies for the tilt rotor aircraft have been accomplished, and redesign (feasibility) study contracts for the RSRA awarded.

In fiscal year 1972 the Army began a three-year $35.7 million effort to evaluate improvements to current light observation helicopters in the scout role. Contracts were signed with Bell Helicopter Company and Hughes Tool Company in May 1972. Each contractor will provide three advanced development prototype aircraft designed to provide an improved target acquisition capability through stabilized optics, accurate position location through a computerized navigation subsystem, and improved durability. A complementary effort will evaluate night vision sensors. Upon completion of prototype testing and night sensor evaluation, one airframe and selected subsystems will undergo an engineering development program prior to production of the improved aerial scout.

In January 1972 a special task force was formed within the United States Army Combat Developments Command to conduct an evaluation of advanced attack helicopter requirements. The mission of the task force was later expanded to include preparation of a draft decision co-ordinating paper for the advanced attack helicopter project. Task force activities included flight testing of the Blackhawk, Cheyenne, and

King Cobra prototype attack helicopters, analyzing field experimental results and program costs, and preparing quantitative studies. At the close of the fiscal year, the task force was on schedule in meeting the July 1972 deadline for submission of its recommendations.

Several major hurdles were overcome in the Mechanized Infantry Combat Vehicle program during the year, which moved from the validation phase to the initiation of engineering development in April 1972. Requests for proposals were subsequently released to industry, but selection of a contractor had not been made at year's end. The major developments in the Armored Reconnaissance Scout Vehicle (ARSV) program came in October 1971 when the Deputy Secretary of Defense approved the program, and in May 1972 when the Army awarded contracts to the Lockheed Corporation and the Food Machinery Corporation to produce prototype vehicles. Lockheed will develop a wheeled version of the ARSV, Food Machinery Corporation a tracked version.

In other development activities during the year, extensive preparations for a competitive evaluation of the Vehicle Rapid Fire Weapons System (Bushmaster) among three participating weapons companies were completed; contracts were awarded for the production of ten prototypes of a Squad Automatic Weapon (SAW) that would have an effective range of 800–1,100 meters and weight, with a 200-round load, 17–21 pounds; and, with regard to the Family of Military Engineer Construction Equipment (FAMECE), competitive prototyping contracts were awarded for the fabrication of grader, scraper, and power modules. Also, in the area of Army Tactical Data Systems (ARTADS), research and development acceptance tests were completed on the Tactical Fire Detection System (TACFIRE), and engineering and expanded service tests were initiated. TACFIRE will automate both tactical and technical fire control functions and promises to increase greatly the accuracy, responsiveness, and effectiveness of fire support. During the year, development continued on two other important members of the ARTADS family, the Air Defense Control and Coordination System (AN/TSQ–73) and the Tactical Operations System (TOS).

Advanced Ballistic Missile Defense

A more flexible Advanced Ballistic Missile Defense (ABMD) program has been developed to permit easy modification in the event that the Strategic Arms Limitation Treaty (SALT) talks lead to limitations on ABMD research and development projects. The program can also be stretched out should treaty ratification result in decreased emphasis upon ABMD and cuts in budgetary support.

Numerous projects relating to the ABMD program registered gains

during the year. In the area of designation and discrimination techniques, a preliminary set of engagement specifications was published that set forth requirements for resource allocation, radar scheduling, and passive discrimination. Detailed design for an L-band solid state radar was completed and a 32-element fractional array was constructed and successfully tested. In March 1972, Upstage, the major test vehicle for advanced interceptor development with reference to the terminal defense mission, underwent successful flight testing. Also, preliminary vulnerability and hardness levels were determined for both terminal and area interceptors, and a multiburst fratricide study was initiated and lethality assessments completed for re-entry body designs.

The Advanced Ballistic Missile Agency's Data Processing Testbed was established to serve as the focal point in the development and verification of program software. A key component of the facility is a sophisticated threat simulator (SETS) that simulates battle scenarios—including re-entry vehicles, decoys, junk, ground clutter, interceptors, and nuclear effects—and validates the application of data. During the year a data link connecting the testbed with the Hard Point Defense Acquisition Radar (HAPDAR) at White Sands Missile Range was established that permits field test simulations to be run to validate operational software in real time.

In other developments, significant progress was made in preparing the Kiernan Reentry Measurement Site (KREMS) test complex in the Kwajalein Atoll for the impending flight test program; a new concept solid propellant engine with both thrust modulation and thrust vector control was successfully fired; and the design of a homing interceptor terminal (HIT) was completed and construction of a prototype model for testing begun. Work also continued on the development of a real time data processor; design and development of the Midcourse Airborne Target Signature (MATS) sensor system were completed and final hardware environmental checks initiated; and a study was begun to evaluate the applicability of various advanced laser concepts in support of area defense.

International Co-operation

The U.S. Army has been co-operating with its British, French, and German counterparts in testing and evaluating low altitude air defense systems. During the past year, testing and evaluation of the French Crotale system has been completed; the Javelot demonstration program, a joint U.S.-French effort, went forward; and testing on the British Rapier was initiated. The French-German Roland II system is scheduled for testing in January 1973. A management plan has been developed to assure an orderly and timely selection of air defense system

candidates that satisfy low altitude Field Army Air Defense System requirements. Should the decision be made to field a foreign system, the Chief of Research and Development has proposed that eligible U.S. licensees of the foreign companies involved compete for contracts.

The successful completion of the U.S. Ribbon Bridge development program late in the fiscal year provided a significant advance in the rapid crossing of water obstacles. This program is of great interest to certain members of the North Atlantic Treaty Organization, who are co-operating in developing a bridge erection boat to be used in ribbon bridge construction. Prototype tests were initiated on two United States boats and one each from France, the United Kingdom, and the Federal Republic of Germany. Testing will be completed in fiscal year 1973.

XI. Civil Works and Military Engineering

During fiscal year 1972, the Army continued to execute its congressionally mandated civil role as the primary developer of the nation's water and related land resources. The Corps of Engineers civil works program included projects dealing with navigation, flood control, hydroelectric power production, water supply for municipal, industrial, and agricultural use, shoreline protection, water-based recreation, preservation of fish and wildlife habitat, and emergency disaster relief, as well as the research effort needed to support these activities.

Environmental Activities

Fiscal year 1972 was a period of challenge and accomplishment for the Army in its new assignment to help clean up the nation's waters. The Corps of Engineers and the Environmental Protection Agency (EPA), in co-operation with other federal, state, and local agencies, completed regional wastewater management feasibility studies covering five areas—Chicago, Cleveland, Detroit, San Francisco Bay, and the Merrimack River Basin, including Boston.

The scope of the Chicago feasibility study was enlarged by a special study including cost and performance data and the evaluation of alternative methods and treatment measures. It does not deal with political or social questions, which are considered to be of sufficient importance to merit multidisciplinary studies in the future, in co-operation with other federal, state, and local agencies, and the general public.

Four of the five feasibility studies are now being expanded into detailed studies, as will the Merrimack River Basin study following its revision.

The corps made significant progress during the year in developing an assessment of the nation's environmental resources. Environmental inventories were initiated in Washington, Vermont, North Carolina, and the Charleston district of South Carolina to assist corps districts in mapping valuable environmental resources. The object of this effort is to locate and identify resources and amenities, both natural and man-made, which comprise man's physical, biological, and cultural environment; and to identify further those resources which should be preserved, protected, or approached with careful deliberation in the planning, development, and management of water and related land resources.

Acting under the authority of Section 233, Public Law 91–611, the

Corps of Engineers began a study of the effects of strip mining operations on navigable waters, their tributaries, and water resource projects under the jurisdiction of the U.S. Army Chief of Engineers. Corps division engineers initiated investigations to determine the extent of the problem in their areas. Streams where serious problems exist, and the strip mining sources causing the problems, are being identified.

Deepwater Ports

The 16,000 dead-weight ton (dwt) capacity of the T–2 tanker was the yardstick for determining required depths for major U.S. deepwater ports in the 1940s. Since then, shipyards have been turning out even larger commercial cargo vessels. Some of the newer crude oil tankers, for example, have a capacity of more than 300,000 dwt, and even larger vessels will soon ply the world's sea lanes.

Despite a number of improvements made over the years, U.S. port facilities have not kept pace with the requirements posed by the larger, deep-draft vessels now engaged in world trade. Presently, over 700 of these ships cannot enter any U.S. port because of their great size.

As the United States continues to face the prospect of limited and rapidly diminishing raw materials from domestic sources, notably crude petroleum, the inability of U.S. ports to berth many of the vessels on which these products are transported will have serious consequences in the future. To deal with this problem Congress last year approved funds for two Army Corps of Engineer regional studies that will assess the nation's port development needs on the Gulf and Atlantic coasts. When the studies are completed, the corps, working with other federal and state agencies, will have accumulated the engineering, physical, biological, and social information required to develop viable programs for correcting the nation's deepwater port deficiencies.

Emergency Disaster Relief

In the final days of fiscal year 1972, record-breaking flood waters induced by Hurricane Agnes left a wake of mud-caked debris across six Northeastern states—Maryland, Virginia, West Virginia, New York, Pennsylvania, and Ohio. Factories, shops, homes, and businesses were inundated. More than 100 people lost their lives in the flood waters, which cost upwards of $3.1 billion in estimated damages and required the evacuation of some 387,000 people. A total of 233 counties and cities were declared disaster areas. The Director, Office of Emergency Preparedness, assigned the Corps of Engineers major disaster relief missions to alleviate destruction and human suffering in the six storm-ravaged states.

As early as forty-eight hours before the storm hit the Northeast, the Corps of Engineers North Atlantic Division began preparations. A fully staffed emergency operations center was established, which began issuing policy guidance to corps districts in the hurricane's path and handled outside requests for technical information and assistance.

As the hurricane wreaked its havoc and the flood waters rose, corps districts in New York City, Philadelphia, Baltimore, Pittsburgh, Buffalo, and Norfolk rushed in pumps, sandbags, and other items to aid the emergency operations. Corps of Engineers rescue and survey teams were mobilized and rushed to disaster areas to provide on-the-spot assistance and technical advice. Flood control dams and reservoirs were closely regulated to reduce flood crests, which were sweeping down rivers and streams.

Corps technical personnel from all sections of the continental United States flew into the stricken area to assist the hard-pressed North Atlantic Division in its emergency relief effort. One hundred officers assigned to the Army Engineer School joined the corps work force. The Civil Works Directorate, operating out of a 24-hour-a-day command post established at Headquarters, Office of the Chief of Engineers, assessed field damage reports and issued a stream of orders directing priority work. The restoration of public utilities, i.e., power, water and sanitary systems, was given top priority.

The Baltimore District covering the Susquehanna River Basin, which was in the area hardest hit by the floods, established and staffed fifteen area emergency offices at Wilkes-Barre, Harrisburg, Lock Haven, Sunbury, York, Lewiston, and Towanda, all in Pennsylvania; Annapolis, Ellicott City, Frederick, and Havre de Grace, in Maryland; Alexandria, Richmond, and Covington, in Virginia; and Martinsburg, West Virginia.

A complete report on Corps of Engineers emergency activities, which continued into fiscal year 1973, will be presented in next year's Department of the Army Historical Summary.

Boiling grey clouds began to build up over Rapid City, South Dakota, on June 9, 1972, signalling another of the storms which typically hit the area and then move off across the Dakota plains. But this storm did not move, and while it hovered over the area it dumped 4–14 inches of rainfall, with the heaviest concentration over the Rapid Creek Basin, west of the city. A rushing wall of water moved toward Rapid City and the nearby communities of Sturgis, Box Elder, and Keystone; 234 persons lost their lives in the flood. The four communities were inundated, with 515 mobile homes flooded, 363 destroyed; 1,336 homes flooded, 619 totally destroyed; and 284 businesses flooded, of which 48 were destroyed. Drinking water was polluted, phone and electricity service

knocked out, and thousands of people left hungry, homeless, and without adequate clothing. Total estimated damage amounted to $82.5 million.

The Office of Emergency Preparedness assigned the Corps of Engineers Omaha District important emergency disaster relief tasks. Corps technical personnel set up an emergency operations center in the South Dakota National Guard Armory just west of Rapid City on the morning of June 10. Preliminary damage surveys were completed on the same day so that emergency assistance under Public Law 91–606 could be initiated without delay. Corps estimating teams surveyed the flood-ravaged area in and around Rapid City, and local contractors were alerted to submit bids for emergency cleanup work. Between June 13 and June 28 the corps awarded 34 contracts for removal of 595,157 cubic yards of debris and silt at a cost of $994,119 under authority of Public Law 91–606.

At Sturgis, South Dakota, local authorities requested assistance to relieve a critical situation at the Fort Meade dam, a water supply source for a Veterans Administration hospital. A 75-foot section of this concrete structure, commercially constructed in 1909 and remodeled in 1936, was eroded and threatened to break and inundate the community of 4,600 residents. Corps experts arrived on the scene to direct attempts to bolster the weakened dam. National Guardsmen repaired and rebuilt two miles of flood-damaged roads to permit construction equipment to reach the dam. Pumps, manned by the Guardsmen, lowered the reservoir water level and relieved pressure on the dam. Then a team of demolition experts, flown in from the corp's Engineer Explosive Excavation Research Office, breached a section of the dam to ease the pressure on the weakened structure.

The heaviest snowpack in the Columbia River Basin since 1894 gave warning, early in 1972, of a serious flooding potential during the coming spring, when the snow would begin to melt. The Chief of Engineers authorized Operation Foresight '72, a program of advance preparation for the expected floods. The Seattle District dispatched a six-man reconnaissance team to investigate conditions from Puget Sound to the Rocky Mountains. A total of 52 projects costing $674,000 were completed in preparation for the anticipated floods.

By May 28, 1972, runoff from the melting snowpack presented a real threat. The Seattle District declared a flood emergency and dispatched ten engineers to the Okanogan and Methow Rivers in central Washington. The Okanogan crested on June 3 at 22.54 feet, 8 feet above zero damage level and 4.5 feet above major damage level. This constituted the severest flooding on the Okanogan in this century. Just as the river was dropping, a weather front accompanied by severe

thunderstorms caused the Okanogan to rise to a second crest of 21.7 feet on June 12. The Methow River also overflowed its banks and caused extensive damage.

The Office of the Chief of Engineers authorized a total of $3.1 million in Public Law 84–99 funds to the North Pacific Division for Operation Foresight '72 and related flood fighting activities in the Portland, Seattle, and Walla Walla districts. Precautionary measures prevented an estimated $8.5 million in damage. In addition, reservoir regulation on the Columbia River Basin prevented an estimated $100 million in damages on the lower Columbia River.

In the early morning hours of March 19, 1972, several barges being towed downstream on the Ohio River broke loose from their tug at a point above the Corps of Engineers' McAlpine Lock and Dam. One of the barges, loaded with four tanks of chlorine, partly blocked Gate Number 2, raising concern that a leak might occur that would endanger the population in sections of nearby Louisville, Kentucky.

After careful assessment of the situation by federal and state agencies, the Corps of Engineers retained a salvage contractor to stabilize the barge and remove the chlorine. The Office, Chief of Engineers Emergency Operations Center, and all Divisional Emergency Operating Centers were placed on an around-the-clock alert on March 24. Also, the Office of Emergency Preparedness authorized predisaster assistance by invoking Section 221 of Public Law 91–606. While preparations were under way for the transfer of the chlorine from the disabled barge to an empty chlorine barge, some 4,000 nearby residents were evacuated for a 24-hour period. Removal of the liquid chlorine commenced on April 3 and was completed without incident on April 15. A potential disaster was averted.

Military Engineering

The U.S. Army Corps of Engineers conducted several staff studies and special reviews during the year as part of a continuing program aimed at influencing modernization and improvement of the organizational structure of engineer troop units and the doctrine associated with their employment. These studies gave special attention to the evaluation of combat engineer units in light of recent experience in Vietnam and possible future uses of such units in foreign or domestic missions. Two of the studies were forwarded to the U.S. Army Combat Developments Command for use in the development of more versatile, productive, efficient, and balanced combat engineer units. Specific recommendations included the use of standardized "building block" type combat engineer companies in various configurations in structuring the several different types of combat engineer battalions employed in the Army,

and wider use of airmobile construction equipment to increase unit flexibility in employment and tactical and strategic mobility.

Contracts were awarded late in the fiscal year for the procurement of commercial 20-ton capacity dump trucks and 1,500 gallon asphalt distributors for equipping Army engineer construction battalions and other engineer units. The action met a major objective in implementing the Army's Commercial Construction Equipment System Plan. Approved in concept by the Secretary of the Army earlier in the year, following a two-year test, the plan is designed to equip Army engineer units with modern, commercially available construction equipment. Currently used military design and modified commercial equipment will be progressively replaced with proven "off-the-shelf" equipment in order to take advantage of the construction machinery industry's highly competitive research, development, and testing effort. Since military construction requirements closely approximate those of civilian construction contractors, the use of the civilian equipment manufacturer's test data and contractor's performance data should reduce or eliminate the need for military testing. The plan encompasses virtually all major items of construction equipment, including crawler and wheeled tractors, earth-moving scrapers, motorized graders, compaction equipment, and crane-shovels.

A pilot-item program has been designed to develop and refine administrative procedures for defining commercial construction equipment item requirements and the selection, evaluation, and adoption of the best qualified items. Experience gained in the pilot-item program during fiscal year 1972 resulted in timely action to purge or modify procedural steps that were proving burdensome and that would cause unnecessary delays between the time an item requirement was established and the date of its delivery.

Mapping and Geodesy

The U.S. Army Topographic Command (TOPOCOM) turned out 664 new large scale maps covering 149,000 square miles, 392 medium scale maps covering 2,116,800 square miles, and 184 city maps during the year. Initiation of a computerized program to consolidate the management of map distribution activities has simplified and improved stock management procedures in the overseas theaters.

TOPOCOM produced digitized terrain data (DTD) of 135 map sheets. The Electromagnetic Compatibility Analysis Center continues to be the primary user of digital terrain data. During October 1971, Army topographers produced a special block of DTD covering an area adjoining Fort Riley, Kansas, for use by the Weapons Systems Evalua-

tion Group of Defense Research Engineering in a joint operations test evaluation.

The sale and production of 1:250,000 scale plastic relief maps of the fifty states was discontinued in August 1971 due to budgetary restraints. The T. N. Hubbard Scientific Company received a contract to produce and sell these maps.

TOPOCOM made significant contributions to the Apollo manned lunar landing program. Apollo landmark graphics and lunar surface exploration data packages were prepared for use in the Apollo 15 and 16 missions. Army topographers prepared a 16 by 25-foot three-dimensional relief model of the Taurus Littrow landing area for use in astronaut training at Cape Kennedy for the forthcoming Apollo 17 mission. This is the eighth such model prepared by TOPOCOM in support of the Apollo program. Technical proposals for the development of a lunar control network and the production of photomaps at 1:250,000 scale were formulated and presented to the National Aeronautics and Space Agency.

TOPOCOM continued to support the Mobile Army Sensor System Test Evaluation and Review (MASSTER) test facility. An experimental air movement map to support extremely low-level flying was completed, and 300 35-mm. slides of the Fort Hood, Texas, area were provided in support of MASSTER's Position Reporting and Recording System.

Major ground survey activities undertaken during the year, using conventional optical and electronic distance measuring equipment, involved establishing precise traverses at both the White Sands Missile Range, New Mexico, and the Arizona Test Range; establishing astronomic positions at missile sites; and providing control for the Launch Region Gravity Model gravity surveys. Other projects included surveys at military bases, surveys in support of civil works programs, and training support to the Iranian Mapping Project.

Gravity surveys are currently being conducted under contract or co-operative agreements in a number of foreign countries including Norway (land and marine), Iceland (marine), and Finland (land). Negotiations to establish agreements for conducting gravity surveys in certain areas bordering the Mediterranean were initiated during fiscal year 1972.

The 30th Engineer Battalion (Base Topographic) was relieved from attachment to TOPOCOM and placed under command and operational control of the Commanding General, Fort Belvoir, Virginia, on April 1, 1972. This action was taken in consonance with the pending realignment of worldwide topographic assets, which is scheduled for completion in fiscal year 1973. The reconstitution of topographic units

will provide the theaters with an organic mobile topographic capability to support theater tactical planning and operations through the production of surveys, maps, map substitutes, and related terrain information. The mission of oversea topographic units has been modified to conform with the anticipated establishment of the Defense Mapping Agency.

XII. Special Functions

Administration of the Ryukyu Islands

On May 15, 1972, responsibility for governing the Ryukyu Islands reverted to Japan, bringing an end to twenty-seven years of U.S. administration conducted by the Army. The transfer of responsibility followed ratification by the United States Senate and the Japanese Diet of the Okinawa Reversion Treaty, which had been signed on June 17, 1971.

Because of its responsibility for governing the Ryukyus during the entire period of U.S. tenure, the Army, both at Washington and in the field, was closely involved with the treaty negotiations and ramifications. The Army provided extensive staff support in virtually all facets of these complicated proceedings, whereby the United States fulfilled its long-standing pledge to honor Japan's residual sovereignty over Okinawa by returning it to Japanese rule.

Under terms of the new treaty, the United States government has relinquished, in favor of Japan, all rights and interests in the Ryukyu Islands and the Daito Islands. The United States retained its military base on Okinawa under provisions of the Treaty of Mutual Cooperation and Security and related agreements. The Japanese government must now, however, be consulted before major changes are made in the deployment of U.S. forces and weapons, and before U.S. bases on Okinawa may be used to support combat operations elsewhere.

For its part, Japan has agreed to provide the necessary facilities and areas for U.S. forces stationed on Okinawa in support of U.S. treaty commitments in the Far East. Also, the Japanese will soon assume responsibility for the immediate defense of the Ryukyus. More fundamentally, the entire reversion arrangement includes a clear recognition by Japan of its stake in the collective security of the Far East.

At the end of its 27-year administration of the Rykyus, the Army could look with pride at its role in improving the welfare and well-being of the Ryukyuan people and in promoting their economic, educational, and social development.

When American troops first occupied Okinawa in the summer of 1945, following a grim 93-day battle in which about 200,000 noncombatants, 110,000 Japanese defenders, and 49,151 Americans were killed or wounded, Okinawa was virtually devastated. Its economy was

ruined, and its population was without means of subsistence. The return of some 180,000 repatriates to Okinawa from Japan and the South Pacific further aggravated a critical situation. For the first two years after the war, the Army provided food and clothing for all, medical care for the sick and wounded, seeds and tools for farmers, and other needed assistance. Congress appropriated $148 million during the seven years of occupation to finance the relief and rehabilitation of the Ryukyuans.

The Army's efforts in behalf of the Ryukyuan people continued after the Treaty of Peace took effect in 1952. During this period of Army administration, Congress provided an additional $280 million in economic aid. In addition, the U.S. military presence brought added benefits; some 40,000 Ryukyuans were employed, and goods and services were purchased on the local economy. These outlays provided an indirect form of financial assistance that ultimately amounted to more than $250 million annually.

In addition to achievements in the economic area, notable contributions were made in other areas of Ryukyuan life during the period of Army administration. The Army provided extensive funds for the expansion of the Ryukyuan educational system and founded the University of the Ryukyus, the first institution of higher learning in the archipelago. The university now has an enrollment of 4,000; many teachers in the public school system have been trained there, and its influence continues to expand. There have also been significant advances in the field of public health. Malaria, once prevalent, has been stamped out, and other diseases have been brought under control. The lifespan for women has advanced since 1952 from an average of 52 years to more than 75, while that for men has advanced from 47 years to nearly 70.

In regaining the Ryukyu Islands, Japan reacquired a prefecture which is in vastly better shape than in prewar years. The Okinawan economy is thriving, and the destruction caused by the last great Pacific military campaign has been erased from the landscape. Many public utilities, hitherto unknown, have been developed. An area that was predominantly agricultural has undergone an economic revolution, and an emerging industrial and commercial society has evolved. The population has almost doubled, from about one-half million to one million, and the standard of living is now at an all-time high, being exceeded in all of Asia only by that of some of Japan's other prefectures.

Administration of the Panama Canal

By authority delegated to him as the personal representative of the President, the Secretary of the Army has special responsibilities for Panama Canal matters which include operations of the Canal Zone government and the Panama Canal Company. The Canal Zone govern-

ment is administered under the supervision of the Secretary of the Army by the governor of the Canal Zone, who is appointed by the President. Management of the Panama Canal Company is vested in a board of directors appointed by the Secretary of the Army as "stockholder" representing the interests of the United States as owner of the corporation. The Secretary of the Army has appointed the Under Secretary of the Army as a member and chairman of the board.

These arrangements derive from the 1903 treaty which gave the United States the right to maintain, operate, and defend a canal in Panama in perpetuity, and the right to act "as if it were the sovereign" within a ten-mile-wide zone embracing the canal.

On June 29, 1971, after a four-year lapse, the United States and Panama resumed formal negotiations for a new Panama Canal treaty. The Deputy Under Secretary of the Army co-ordinates with the State Department in negotiations on military matters, as chairman of the Panama Canal Negotiations Working Group, which was established by Secretary of Defense Melvin R. Laird in August 1971; and for non-military matters in his role of assisting the Secretary of the Army in the supervision of Canal Zone government affairs.

During fiscal year 1972, 14,238 ocean-going ships, including 413 United States government vessels, passed through the canal. Toll revenues were approximately $101.5 million, including credits for transits of the United States government vessels. The 1972 toll figure represented an increased of almost $1 million over 1971 revenues. Panama Canal revenues are applied against operating and capital expenses of the canal enterprise. Detailed financial statements are published in the annual reports of the Panama Canal Company and the Canal Zone government.

Promotion of Rifle Practice

The National Board for the Promotion of Rifle Practice (NBPRP) was established by congressional action in 1903. Marksmanship programs sponsored by the NBPRP are conducted by the Office of the Director of Civilian Marksmanship.

The current civilian marksmanship program provides support to junior boys between the ages of 12 and 19. The Army loans .22-caliber rifles to participating clubs, provides .22-caliber ammunition and small-bore targets, and awards qualification badges to individuals who meet approved courses of fire on the range.

As in previous years, the NBPRP has authorized the National Rifle Association (NRA) to conduct four of the five National Trophy Matches at the Annual NRA National Rifle and Pistol Championships. In August 1971, a total of 58 teams, including 35 civilian teams, and

975 individuals competed for service rifle and service pistol trophies and medals at the NBPRP National Trophy Matches.

Appropriated funds for NBPRP programs were increased in fiscal year 1972 to $126,000, thus permitting the Office of the Director of Civilian Marksmanship to maintain support of the civilian marksmanship programs at levels authorized by Army regulations.

XIII. Summary

In fiscal year 1972 the Army, as this report reveals, was rapidly phasing out of the Vietnam War and turning its attention to postwar and peacetime operation. As the war wound down, a broad effort was under way to stabilize the Army, overcome the lingering problems raised by the conflict, and step off with a revitalized professional force built upon a volunteer foundation—one providing an improved institutional environment for its members and holding the confidence and respect of the nation.

A process of normalization was evident along many lines. Over the past several years there had been adjustments in long-standing American commitments that brought some Army troops home from Europe and Korea. In the past year this process was continued as major forces returned from Southeast Asia and appropriate adjustments were made throughout the Pacific region. The reversion of the Ryukyu Islands to Japan closed out an Army responsibility there as well.

There were corresponding modifications within the departmental headquarters, where recent realignments moved volunteer Army and Army surveillance, target acquisition, and night observation (STANO) management out of executive levels and back onto functional staff channels. At the same time, international agreements curtailed the Army's antiballistic missile and biological warfare programs, and the over-all civil defense operating responsibility, held by the Secretary of the Army for about nine years, was shifted back to the Secretary of Defense.

In the decade that has passed since the Army underwent a major reorganization, there have been marked changes in organizational and managerial situations. These developments led to the appointment by the Secretary of the Army of a Project Manager for Reorganization to develop and manage a program to improve the organization of the Army at the major command and higher headquarters staff levels. The resultant series of major actions taken in 1973 to modernize, reorient, and streamline the Army's continental United States organization will be covered in next year's report.

The close of the year saw Army personnel and divisional strength below the goals that had been planned for a post-Vietnam force. The Army's task in fiscal year 1973 would be to continue and hopefully complete the withdrawal from Vietnam, reach authorized levels of postwar strength in personnel and major units, and achieve a stable force of volunteers within the fiscal limits set by higher authority.

Appendix A

SECRETARIES OF WAR AND OF THE ARMY

Secretaries of War

Henry Knox	12 Sep 1789–31 Dec 1794
Timothy Pickering	2 Jan 1795–10 Dec 1795
James McHenry	27 Jan 1796–13 May 1800
Samuel Dexter	13 May 1800–31 Jan 1801
Henry Dearborn	5 Mar 1801–7 Mar 1809
William Eustis	7 Mar 1809–13 Jan 1813
John Armstrong	13 Jan 1813–27 Sep 1814
James Monroe	27 Sep 1814–2 Mar 1815
William H. Crawford	1 Aug 1815–22 Oct 1816
John C. Calhoun	8 Oct 1817–7 Mar 1825
James Barbour	7 Mar 1825–23 May 1828
Peter B. Porter	26 May 1828–9 Mar 1829
John H. Eaton	9 Mar 1829–18 Jun 1831
Lewis Cass	1 Aug 1831–5 Oct 1836
Joel R. Poinsett	7 Mar 1837–5 Mar 1841
John Bell	5 Mar 1841–13 Sep 1841
John C. Spencer	12 Oct 1841–3 Mar 1843
James M. Porter	8 Mar 1843–30 Jan 1844
William Wilkins	15 Feb 1844–4 Mar 1845
William L. Marcy	6 Mar 1845–4 Mar 1849
George W. Crawford	8 Mar 1849–23 Jul 1850
Charles M. Conrad	15 Aug 1850–7 Mar 1853
Jefferson Davis	7 Mar 1853–6 Mar 1857
John B. Floyd	6 Mar 1857–29 Dec 1860
Joseph Holt	18 Jan 1861–5 Mar 1861
Simon Cameron	5 Mar 1861–14 Jan 1862
Edwin M. Stanton	20 Jan 1862–28 May 1868
John M. Schofield	1 Jun 1868–13 Mar 1869
John A. Rawlins	13 Mar 1869–6 Sep 1869
William W. Belknap	25 Oct 1869–2 Mar 1876
Alphonso Taft	8 Mar 1876–22 May 1876
James D. Cameron	22 May 1876–3 Mar 1877
George W. McCrary	12 Mar 1877–10 Dec 1879
Alexander Ramsey	10 Dec 1879–5 Mar 1881

Robert T. Lincoln	5 Mar 1881–5 Mar 1885
William C. Endicott	5 Mar 1885–5 Mar 1889
Redfield Proctor	5 Mar 1889–5 Nov 1891
Stephen B. Elkins	17 Dec 1891–5 Mar 1893
Daniel S. Lamont	5 Mar 1893–5 Mar 1897
Russell A. Alger	5 Mar 1897–1 Aug 1899
Elihu Root	1 Aug 1899–31 Jan 1904
William H. Taft	1 Feb 1904–30 Jun 1908
Luke E. Wright	1 Jul 1908–11 Mar 1909
Jacob M. Dickinson	12 Mar 1909–21 May 1911
Henry L. Stimson	22 May 1911–4 Mar 1913
Lindley M. Garrison	5 Mar 1913–10 Feb 1916
Hugh L. Scott (ad interim)	11 Feb 1916–8 Mar 1916
Newton D. Baker	9 Mar 1916–4 Mar 1921
John W. Weeks	5 Mar 1921–13 Oct 1925
Dwight F. Davis	14 Oct 1925–5 Mar 1929
James W. Good	6 Mar 1929–18 Nov 1929
Patrick J. Hurley	9 Dec 1929–3 Mar 1933
George H. Dern	4 Mar 1933–27 Aug 1936
Harry H. Woodring	25 Sep 1936–20 Jun 1940
Henry L. Stimson	10 Jul 1940–21 Sep 1945
Robert P. Patterson	27 Sep 1945–18 Jul 1947
Kenneth C. Royall	19 Jul 1947–17 Sep 1947

Secretaries of the Army

Kenneth C. Royall	17 Sep 1947–27 Apr 1949
Gordon Gray	20 Jun 1949–12 Apr 1950
Frank Pace, Jr.	12 Apr 1950–20 Jan 1953
Robert T. Stevens	4 Feb 1953–21 Jul 1955
Wilber M. Brucker	21 Jul 1955–19 Jan 1961
Elvis J. Stahr, Jr.	24 Jan 1961–30 Jun 1962
Cyrus R. Vance	5 Jul 1962–21 Jan 1964
Stephen Ailes	28 Jan 1964–1 Jul 1965
Stanley R. Resor	2 Jul 1965–30 Jun 1971
Robert F. Froehlke	1 Jul 1971–

Appendix B

ARMY CHIEFS OF STAFF

Lieutenant General Samuel B. Young	15 Aug 1903–8 Jan 1904
Lieutenant General Adna R. Chaffee	9 Jan 1904–14 Jan 1906
Major General John C. Bates	15 Jan 1906–13 Apr 1906
Major General J. Franklin Bell	14 Apr 1906–21 Apr 1910
Major General Leonard Wood	22 Apr 1910–21 Apr 1914
Major General William W. Wotherspoon	22 Apr 1914–16 Nov 1914
Major General Hugh L. Scott	17 Nov 1914–22 Sep 1917
General Tasker H. Bliss	23 Sep 1917–19 May 1918
General Peyton C. March	20 May 1918–30 Jun 1921
General of the Armies John J. Pershing	1 Jul 1921–13 Sep 1924
Major General John L. Hines	14 Sep 1924–20 Nov 1926
General Charles P. Summerall	21 Nov 1926–20 Nov 1930
General Douglas MacArthur	21 Nov 1930–1 Oct 1935
General Malin Craig	2 Oct 1935–31 Aug 1939
General of the Army George C. Marshall	1 Sep 1939–18 Nov 1945
General of the Army Dwight D. Eisenhower	19 Nov 1945–6 Feb 1948
General Omar N. Bradley	7 Feb 1948–15 Aug 1949
General J. Lawton Collins	16 Aug 1949–14 Aug 1953
General Matthew B. Ridgway	15 Aug 1953–29 Jun 1955
General Maxwell D. Taylor	30 Jun 1955–30 Jun 1959
General Lyman L. Lemnitzer	1 Jul 1959–30 Sep 1960
General George H. Decker	1 Oct 1960–30 Sep 1962
General Earle G. Wheeler	1 Oct 1962–2 Jul 1964
General Harold K. Johnson	3 Jul 1964–2 Jul 1968
General William C. Westmoreland	3 Jul 1968–30 Jun 1972

Appendix C

DEPARTMENT OF THE ARMY

PRINCIPAL OFFICIALS

June 30, 1972

Secretariat

Secretary of the Army	Robert F. Froehlke
Under Secretary of the Army	Kenneth E. BeLieu
Assistant Secretary of the Army (Financial Management)	Eugene M. Becker
Assistant Secretary of the Army (Research and Development)	Robert L. Johnson
Assistant Secretary of the Army (Manpower and Reserve Affairs)	Hadlai A. Hull
Assistant Secretary of the Army (Installations and Logistics)	Dudley C. Mecum
General Counsel	Robert W. Berry
Chief of Public Information	Maj. Gen. Winant Sidle
Chief of Legislative Liaison	Maj. Gen. Bernard W. Rogers
Administrative Assistant	John G. Connell, Jr.

Office, Chief of Staff

Chief of Staff, United States Army	Gen. William C. Westmoreland
Vice Chief of Staff	Gen. Bruce Palmer, Jr.
Assistant Vice Chief of Staff	Lt. Gen. W. E. DePuy
Safeguard System Manager	Lt. Gen. Walter P. Leber
Director of Military Support	Maj. Gen. Roland M. Gleszer
Special Assistant for the Modern Volunteer Army	Lt. Gen. George I. Forsythe
Secretary of the General Staff	Maj. Gen. Warren K. Bennett

General Staff

Deputy Chief of Staff for Military Operations	Lt. Gen. Richard G. Stilwell
Deputy Chief of Staff for Personnel	Lt. Gen. Walter T. Kerwin, Jr.
Director of the Women's Army Corps	Brig. Gen. Mildred C. Bailey

Deputy Chief of Staff for Logistics	Lt. Gen. J. M. Heiser, Jr.
Comptroller of the Army	Lt. Gen. John M. Wright, Jr.
Chief of Research and Development	Lt. Gen. W. C. Gribble, Jr.
Chief, Office of Reserve Components	Lt. Gen. Harris W. Hollis
Assistant Chief of Staff for Force Development	Lt. Gen. R. R. Williams
Assistant Chief of Staff for Intelligence	Maj. Gen. P. B. Davidson, Jr.
Assistant Chief of Staff for Communications-Electronics	Maj. Gen. Thomas M. Rienzi

Special Staff

The Adjutant General	Maj. Gen. Verne L. Bowers
Chief of Engineers	Lt. Gen. F. J. Clarke
The Surgeon General	Lt. Gen. Hal B. Jennings, Jr.
Chief of Chaplains	Maj. Gen. G. W. Hyatt
The Judge Advocate General	Maj. Gen. G. S. Prugh
The Inspector General	Maj. Gen. W. A. Enemark
Chief, National Guard Bureau	Maj. Gen. Francis S. Greenlief
Chief of Information	Maj. Gen. Winant Sidle
Chief of Miltary History	Brig. Gen. James C. Collins, Jr.
Chief, Army Reserve	Maj. Gen. J. Milnor Roberts
The Provost Marshal General	Maj. Gen. L. B. Ramsey
Chief of Personnel Operations	Maj. Gen. Sidney B. Berry
Chief, U. S. Army Audit Agency	Brig. Gen. James W. Gunn

Commands

CG, U.S. Continental Army Command	Gen. Ralph E. Haines, Jr.
CG, First United States Army (Fort George G. Meade, Md.)	Lt. Gen. C. E. Hutchin, Jr.
CG, Third United States Army (Fort McPherson, Ga.)	Lt. Gen. A. O. Connor
CG, Fifth United States Army (Fort Sam Houston, Tex.)	Lt. Gen. P. F. Cassidy
CG, Sixth United States Army (Presidio of San Francisco, Calif.)	Lt. Gen. A. D. Surles
CG, U.S. Army Materiel Command	Gen. H. A. Miley, Jr.
CG, U.S. Army Electronics Command (Fort Monmouth, N. J.)	Maj. Gen. Hugh F. Foster, Jr.

CG, Army Missile Command (Redstone Arsenal, Ala.)	Maj. Gen. Edwin I. Donley
CG, U.S. Army Munitions Command (Picatinny Arsenal, Dover, N.J.)	Maj. Gen. Erwin M. Graham, Jr.
CG, U.S. Army Test and Evaluation Command (Aberdeen Proving Ground, Md.)	Maj. Gen. Charles P. Brown
CG, U.S. Army Weapons Command (Rock Island Arsenal, Ill.)	Maj. Gen. H. A. Rasmussen
CG, U.S. Army Mobility Equipment Command (St. Louis, Mo.)	Brig. Gen. John C. Raaen, Jr.
CG, U.S. Army Aviation Materiel Command (St. Louis, Mo.)	Maj. Gen. Fred Kornet, Jr.
CG, U.S. Army Tank-Automotive Command (Detroit, Mich.)	Maj. Gen. J. E. Pieklik
CG, U.S. Army Combat Developments Command	Lt. Gen. John Norton
CG, U.S. Army Strategic Communications Command	Maj. Gen. Jack A. Albright
CG, U.S. Army Recruiting Command	Maj. Gen. John Q. Henion
CG, U.S. Army Security Agency	Maj. Gen. C. J. Denholm
CG, U.S. Army Intelligence Command	Brig. Gen. O. C. Epp
CG, U.S. Army Military District of Washington	Maj. Gen. James B. Adamson
Commander, U.S. Army Criminal Investigation Cmd.	Col. Henry H. Tufts
Commander, Military Traffic Management and Terminal Service	Maj. Gen. C. J. Lang

Army Components of Unified Commands

CG, U.S. Army Air Defense Command (Ent Air Force Base, Colo.)	Lt. Gen. R. T. Cassidy

CINC, U.S. Army, Europe	Gen. Michael S. Davison
CINC, U.S. Army, Pacific	Gen. William B. Rosson
Commander, U.S. Army Forces Southern Command	Maj. Gen. George L. Mabry, Jr.
CG, U.S. Army, Alaska	Maj. Gen. Charles M. Gettys
CINC, U.S. Army Readiness Command (Fort Monroe, Va.)	Gen. Ralph E. Haines, Jr.

Index

☆ U.S. GOVERNMENT PRINTING OFFICE: 1975 O—551–859